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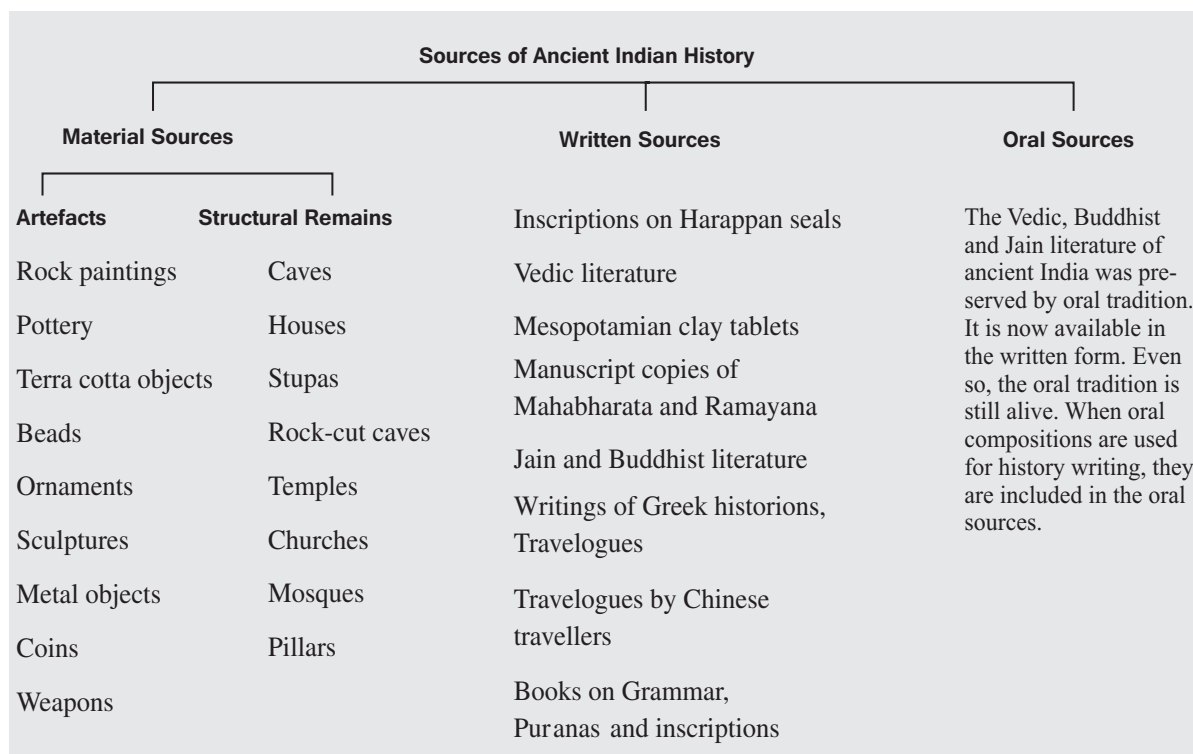
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Chapter 1

History of Ancient India

1. History and Its Sources

- History is the study of past events in chronological order. History helps us to understand those processes that enabled the early humans to successfully conquer their environment and develop the present day civilizations.
- Division of History: History is generally divided into three time periods - prehistory, (when writing had not been invented), proto- history (we do have written records) and history (period after the invention of writing).



Sources of Indian History

| Ancient Books and their Authors | | | |
|-----------------------------------|---------------|-------------------|-------------|
| Books | Authors | Books | Authors |
| Mitakshara | Vijnaneshwara | Gita Govinda | Jaidev |
| Vikramanakadevacharita | Bilhana | Dasavatar Charita | Kshemendra |
| Svapnavasavadattam, Charudatta | Bhasa | Nitisara | Kamandaka |
| Harshacharita | Banabhatta | Ramcharitmanas | Tulsidas |
| Kamasutra | Vatsyayana | Brihat Katha | Gunadhya |
| Mrichchhakatika | Sudraka | Shishupal Vadh | Magha |
| Amarakosha | Amarasimha | Sangeet Ratnakar | Sarangadeva |
| Lalit - vighraja | Somdeva | Susruta Samhita | Sushruta |

| | | | |
|-------------------------------------|-------------------|-------------------------------------|---------------------------------|
| Prabandha Chintamani and Visaraseni | Merutunga | Satasahrika | Nagarjuna |
| Siddhant Shiromani | Bhaskara- II | Satsai | Bihari Lal |
| Mushika Vamsa | Atula | Hitopadesha | Narayana Pandit |
| Navasahasankcharita | Padmagupta | Gatha Saptasati | Hala (Satavahana king) |
| Ramacharital | Sandhyakara Nandi | Mattavilasa Prahasanna | Mahendravarman I (Pallava king) |
| Kavya Darshan | Dandin | Ratnavali, Nagananda, Priyadarshika | Harshavardhana |
| Kumarpala Charita | Hemachandra Suri | Parishishta Parvan | Hemachandra Suri |

Foreign Books and their Authors

| Books | Authors |
|-------------------------------|---------------|
| History of the War | Aristobulus |
| Natural History | Pliny |
| Geography | Ptolemy |
| Periplus of the Erythrean Sea | W.H. Scoff |
| Indica | Megasthenes |
| Historica | Herodotus |
| Biography of Alexander | Oneskitus |
| The Travels of Fa Hien | Fa - Hien |
| Records of the Western World | Hiven Tsang |
| Biography of Hiven Tsang | Hulelly |
| History of Buddhism | Lama Taranath |
| The Travels of Marco Polo | Marco Polo |

Important Inscriptions and Rulers

| Inscription | Ruler |
|-------------------------------------|-------------------------|
| Hathigumpha Inscription | Kalinga Ruler Kharavela |
| Aihole Inscription | Pulakesin II |
| Nasik Inscription | Gautami Balasri |
| Junagarh Rock Inscription | Rudradaman |
| Allahabad Pillar (Prayag Prashasti) | Samudragupta |
| Mandsaur Inscription | Malwa ruler Yashoverman |
| Gwalior Inscription | Pratihara king Bhoja |
| Deopara Inscription | Bengal ruler Vijayasen |
| Bhitri and Junagarh Inscription | Skandagupta |



Do You Know?

- ★ Bharatmuni was the author of "Natyashastra".
- ★ Heliography refers to writing the biography of a saint. Heliography is used for pejorative references to autobiography or history whose authors are perceived to be critical or exemplary of their subjects.
- ★ Such places where memory remains/remnants of the past are found are called historical places. Examples: Harappa, Mohenjodaro etc.
- ★ The word "Manuscript" is derived from Latin language and here word manu means hand.
- ★ Sushruta, Charaka and Dhanvantari were related to medicine in ancient India.
- ★ The study of inscriptions is called Archaeology.
- ★ The books named Mahaviracharita, Malatimadhava and Uttaramacharita are composed by the great scholar Bhavabhuti.
- ★ Mehargarh, an ancient site in the Indian subcontinent, is located near the modern city of Quetta.
- ★ The formation of the Indus Valley Civilization can be traced from the Mehrgarh site.
- ★ Coins, inscriptions and architecture are the sources which provide information about the past.
- ★ The main use of paper in historical records was to write sacred texts.
- ★ Manuscripts collected by wealthy individuals and institutions pose challenges to historians because of the diversity and variation within a single text.
- ★ Historians discovered the existence of an earlier edition of Ziauddin Barani's history in the 1960s.
- ★ The number and variety of textual inscriptions increased dramatically during the time period from 700 to 1750 AD.
- ★ The term megalith refers to monuments made of or consisting of large stones.
- ★ The ancient script Brahmi is considered the mother of all modern scripts.
- ★ The main use of paper in historical records to write a sacred book.
- ★ Hunasagi is a Palaeolithic site of archaeological importance.
- ★ Remains of ostrich were found in the Paleolithic period.

2. Prehistoric Cultures

- According to the Commission Report, the present archaeological system consists of the three main ages- Stone Age, Bronze Age and Iron Age. It was developed

by the Danish archaeologist Christian Jurgensen Thomsen in 1818 and 1820. Please note that the period before the development of the script is called the prehistoric times. It is also referred to as the Stone Age.

Phases of Stone Age

| Phase | Timeline | Description |
|---|-----------------------|---|
| Palaeolithic (Old Stone Age): 5,00,000 - 10,000 BCE (Hunters and Food Gatherers) | | |
| Lower Palaeolithic | 5,00,000 - 50,000 BCE | In this Age, humans used stones for hunting which were found in nature and already had cutting edge. They used tree branches, leaves and stones to make shelter for living. |
| Middle Palaeolithic | 50,000 - 40,000 BCE | |
| Upper Palaeolithic | 40,000 - 10,000 BCE | |
| Mesolithic/Middle Stone Age (9000 - 4000 BCE/Hunters and Herders): It is considered as a transitional phase between the Palaeolithic and Neolithic. The mesolithic people lived on hunting and fishing and food gathering. At a later stage, they also domesticated animals. The characteristic tools of this age are microliths. | | |
| Neolithic/New Stone Age (9000 - 1000 BCE/Food Producers): During this age, the hunters learnt about agriculture. At first they collected wild crops. About 10,000 years ago, they started to produce grains, fruits and vegetables. They made a plow out of antlers, stone and wood and started to cultivate the land with the help of herded animals. They used stone mortars and pestles to grind cereals and grains. Barley was the first cereal to be used by man. | | |

Classification of phases of palaeolithic age based on nature of stone tools and climate change

| Phase | Early Palaeolithic (Early Pleistocene) | Middle Palaeolithic (Middle Pleistocene) | Upper Palaeolithic (Upper Pleistocene) |
|--------------------|--|---|--|
| Tools | Choppers, hand axes, cleavers | Scrapers, borers, blades, points made of flakes | Blades and burins |
| Major Sites | Soan river (Punjab, Pakistan), Kashmir, Chota Nagpur Plateau, Narmada valley, Andhra Pradesh, Karnataka, Thar desert and Didwana (Rajasthan), Belan valley in Mirzapur district (Uttar Pradesh), rock shelters of Bhimbetka (Raisen, Madhya Pradesh) | Nevasa (Maharashtra), Didwana and Budha Pushkar (Rajasthan), Bhimbetka (MP), Narmada, Godavari, Krishna, Yamuna and other river valleys | Kurnool (AP), Meralbhai (Karnataka), Baghor -I and Baghor III (Central MP), Southern UP, South Bihar plateau, Gujarat, Patne (Maharashtra), cave shelters at Bhimbetka |



Do You Know?

- ★ Evidence obtained from Palaeolithic Site Kurnool: Traces of ash
- ★ Evidence obtained from Palaeolithic Site Hungsi: Habitation cum factory sites
- ★ Evidence obtained from Palaeolithic Site Patna: Ostrich Egg Shells
- ★ Bhimbetka is a pre-historic site and situated in Madhya Pradesh. This site is known for pre-historic cave paintings.

- ★ Caves and rock shelters have been obtained from Palaeolithic Site Bhimbetka. The rock paintings of Madhya Pradesh may be considered as a primary source for understanding early humans in India.
- ★ Evidences found at Gufkral (Kashmir): Wheat and lentil
- ★ Evidences found at Mahagara (Uttar Pradesh): Hoof marks on clay surface
- ★ Evidences found at Hallur (Andhra Pradesh): Millets, cattle, sheep, goat and pig

- ★ Evidences found at Koldihwa (Uttar Pradesh): Rice and fragmentary animal bones
- ★ In one of the first settled sites Burzahom, traces of cooking hearths have been found both inside and outside the huts.
- ★ Bhimbetka, a pre-historic site is situated in Madhya Pradesh.
- ★ Brahmagiri archaeological site is situated in Chitradurga (Karnataka).
- ★ The pressure flaking technique was used in ancient India to make stone tools.
- ★ The East Africa region belongs to the habitat of Australopithecus.
- ★ The Cro-Magnons, known for their cave dwellings, primarily resided in France.
- ★ Neanderthal belongs to Eurasia habitat.
- ★ Homo sapiens originated in East Africa region.
- ★ Homo habilis mainly lived in South Africa.
- ★ The megalithic structure of Sangora Vripta is surrounded by stone structures around the grave in a circular shape.
- ★ Hastinapur iron working site is located in Meerut, Uttar Pradesh.
- ★ The practice of erecting megaliths started about 3000 years ago.

3. World Civilisations and the Indus Valley Civilisation

- **Mesopotamia (3500 to 2000 BC):** Mesopotamia refers to the region of Iraq and Kuwait in West Asia. It was the land lying between two rivers, Tigris and Euphrates, which lie in modern day Iraq. The kingdoms of The Sumerian, Akkadian, Babylonian and Assyrian civilisations flourished in Mesopotamia.
- **Indus Civilisation:** The Indus Valley (Harappan) Civilisation represents the first phase of urbanisation in India. This civilisation belonged to the 'Bronze Age'. This civilisation covers an area of over 1.5 million square kilometres in India and Pakistan. Sutkagen-Dor in the west on the Pakistan– Iran border Shortugai (Afghanistan) in the north Alamgirpur (Uttar Pradesh in India) in the east and Daimabad (Maharashtra in India) in the south are the boundaries within which the Harappan culture has been found. Its main concentration was in the regions of Gujarat, Pakistan, Rajasthan and Haryana.



Do You Know?

- ★ It expanded over the largest area among its contemporary civilizations.
- The ruins of Harappa were first described by the British East India Company soldier and explorer Charles Masson in his

book. He discovered this city in the North-West Frontier Province which is now in Pakistan.

- Harappa, one of the oldest cities in the subcontinent and on the banks of river Indus, was the first city to be discovered. As it flourished on the banks of river Indus, it was named as "Indus Valley Civilization".
- The Indus valley site of Harappa was first visited by Charles Mason (Pseudonym of James Lewis) in 1826 CE, and Amri by Alexander Burnes in 1831. Alexander Cunningham, the first surveyor of the Archaeological Survey of India (ASI) visited this site in 1853, 1856 and 1875.
- In 1924 the Director General of ASI, **Sir John Marshall**, found many common features between Harappa and Mohenjo-Daro (First sites to be excavated). He concluded that they were part of a large civilisation. The archaeological site at Mohenjo-Daro was declared as a World Heritage Site by UNESCO in 1980.
- **Time Span of Indus Civilisation**
 - ❖ Geographical range: South Asia
 - ❖ **Period:** Bronze Age
 - ❖ **Time:** 3300 to 1900 BCE (determined using the radiocarbon dating method)
 - ❖ **Villages:** More than 200

| Site | Findings |
|---|--|
| Harappa | <p>Excavated by: Dayaram Sahnii (1921), Madho Swaroop Vatsa (1926) and Sir Mortimer Wheeler (1946)</p> <p>Archaeological Findings: Six Granaries in row, Workmen's quarters, Seal of Virgin Goddess, Cemetery (R - 37, H), Painted pottery, Figurine of Mother Goddess, Stone symbols of Lingam (male sex organ) and Yoni (female sex organ), Barley and wheat in wooden mortar, Copper scale, a crucible for bronze and Copper - made mirror, Vanity box, Dice. Forts in Harappan cities were built in the western direction.</p> |
| Mohenjo -Daro (also known as Mound of Dead / Nakhlistan / Oasis of Sindh) | <p>Excavated by: Rakhal Das Banerjee (1922), Mackay (1927) and Mortimer Wheeler (1930)</p> |

| Site | Findings |
|-------------------------------------|---|
| | Archaeological Findings: Great Granary, Great Bath (It is the largest building of civilization), Assembly hall, The seal of Pashupati Mahadeva/Proto Shiva, Bronze Image of a dancing girl, Steatite image of bearded man, Clay figures of Mother Goddess, A fragment of woven cotton, Brick Kilns, Two Mesopotamian seals, 1398 seals (56% of total seals of civilization). |
| Lothal | Excavated by: S.R. Rao (1957) Archaeological Findings: Dockyard, Rice husk, Fire altars, Terracotta figurine of a horse, Double burial (a male and a female buried in a single grave), Persian/Iranian and Baharainean seal, A jar painted with bird and fox. Among the Harappan sites, Lothal city was an important center for making stone, shell and metal objects |
| Kalibangan/ Bangles of Black Colour | Excavated by: Amla Nand Ghosh (1953), Dr. B.B. Lal and B.K. Thapar (1961) Archaeological Findings: A pre-Harappan ploughed field, Seven Fire altars, decorated bricks, wheels of a toy cart, Mesopotamian cylindrical seal. |
| Chanhudaro | Excavated by: N.G. Majumdar (1931), E. J. H. Mackay (1935) Archaeological Findings: City without a citadel, inkpot, lipstick, bead - makers' shops, Imprint of dog's paw on a brick, Terracotta model of a bullock cart, Bronze toy cart. |
| Rangpur (Gujarat) | Excavated by: M.S. Vatsa (1931), S.R. Rao (1953-54) |
| Banawali (Hisar, Haryana) | Excavated by: R.S. Bisht (1973-74) Archaeological Findings: Lack of grid pattern town planning, Lack of systematic drainage system, Terracotta Toy plough. Banawali is the only Harappan city where radial roads have been found. |

| Site | Findings |
|--|---|
| Alamgirpur (Meerut, UP) | Excavated by: Y. D. Sharma (1958) |
| Kot Diji (Sindh, Pakistan) | Excavated by: Ghurey (1935), Fazal Ahmed (1955) |
| Amri (Sindh, Pakistan) | Excavated by: N.G. Majumdar (1929) |
| Ropar (Punjab) | Excavated by: Y.D. Sharma (1955-56) |
| Surkotada (Kutch, Gujarat) | Excavated by: J.P. Joshi (1964) Archaeological Findings: Bones of horse (Only site where horse bones have been found), Oval grave, Pot burials. |
| Suktagedor (Sindh, Pakistan) | Excavated by: A Stein (1927) |
| Dholavira, Gujarat | Excavated by: J.P. Joshi, R.S. Bisht (1990-91) Archaeological Findings: A unique water harnessing system and its storm water drainage system, a giant water reservoir, only site to be divided into 3 parts, A stadium . |
| Rakhigarhi (Haryana) | Excavated by: Amarendra Nath (2014) |
| Daimabad | Archaeological Findings: Bronze images (Charioteer with chariot, ox, elephant and rhinoceros) |
| ❖ Shortughai and Mundigak sites are situated in Afghanistan. | |

- **Unique Features of Harappan Civilisation:**
 - ❖ Systematic town - planning on the lines of 'grid system'
 - ❖ Use of burnt (baked) bricks in constructions of houses
 - ❖ Underground drainage system (giant water reservoirs in Dholavira)
 - ❖ Fortified citadel (exception - Chanhudaro)
- The lower cities of Harappan architecture had a courtyard in the center and rooms around it.
- **Rulers** were the people who planned the construction of special buildings in the city.



Do You Know?

- ★ With a few exceptions, houses at most sites of the Indus Valley civilization were made of baked bricks.
- ★ Various types of seals have been found from Harappan civilization sites. In which most are rectangular.
- ★ They were pioneers in cotton production and In the first time Cotton was grown by them.

- The evidence of cultivation of rice has been found from Lothal and Rangpur (Gujarat). Please note that Indus people were the first to produce cotton (Sindon in Greek) in the world.
- Though Sheep, goat, humped and humpless bull, buffalo, boar, dog, cat, pig, fowl, deer, tortoise, elephant, camel, rhinoceros, tiger etc. were important animals of this civilisation yet Lion was not known to them. The remains of rhinoceros have been found from Amri (Sindh, Pakistan).



Do You Know?

- ★ Remains of horse found from Indus Valley Civilization site Surkotada, Lothal But they are considered variable.
- ★ Evidence of iron metal has not been found from any site of the Indus Valley civilization.

- Beads were exported from Chanhudaro and Conch shells were exported from Lothal.
- **They used to import**
 - ❖ Gold from Kolar (Karnataka), Afghanistan, Persia (Iran)
 - ❖ Silver from Afghanistan, Persia (Iran), South India
 - ❖ Copper from Khetri (Rajasthan), Balochistan, Arabia
 - ❖ Amethyst from Maharashtra
 - ❖ Steatite from Shahar-i-Sokhta (Iran), Kirthar Hills (Pakistan)
 - ❖ Jade from Central Asia
 - ❖ Lapis Lazuli from Badakhshan (Afghanistan)
 - ❖ Sapphire from Badakhshan (Afghanistan)
 - ❖ Tin from Afghanistan and Bihar



Do You Know?

- ★ Sumerians/Mesopotamians used to call the Indus People **Meluhha**. Sumerian text refers to Bahrain as **Dilmun** and Makran Coast as **Makan**.

- **Script:** The script of Indus valley was pictographic. This script has not been deciphered so far. The writing was boustrophedon and written from right to left and from left to right in alternate lines.
- The dead were buried.



Do You Know?

- ★ Another name for Harappan civilization is Sumerian.
- ★ The unknown metal during the Indus Valley Civilization was iron.
- ★ Raw bricks were used in abundance for the construction of buildings in Chanhudaro.
- ★ A terracotta model of a plow from the Harappan civilization was excavated at Lothal.
- ★ The site of the Indus Valley Civilization, Mohenjodaro, is not located on the banks of the Indus River.
- ★ Banawali is an archaeological site belonging to the Indus Valley Civilization period in Jind district of Haryana.

- ★ Egyptian civilization was contemporary to the Harappan civilization.
- ★ The third decade of 20th Century was significant in Indian history because the Indus Civilization was explored in this decade.
- ★ The Great Bath was considered unique in its built in the world by Sir John Marshall.
- ★ The inscriptions of Harappan Culture (Indus Valley Civilization) have chiefly been found on seals.
- ★ Dholavira, a famous Harappan site is locally called Kotada timba. It is the sixth largest among all the Harappan sites excavated by The Archaeological Survey of India (ASI). It was named the 40th Indian Site on UNESCO's World Heritage List.
- ★ Indus Valley Civilization also known as Harappan culture is the first site where unique culture was discovered. The civilization appears to be about 2600-1900 BC.
- ★ REM Wheeler was mainly a British archaeologist. He was the Director General of Indian Archaeology from 1944-48. He rectified this problem that it was necessary to follow the stratigraphy of the mound rather than dig mechanically along uniform horizontal lines in Harappan civilization after he took over as Director - General of the ASI in 1944.
- ★ Dholavira had massive reservoirs that were used for storing fresh water brought by rains or to store water diverted from two nearby rivulets.
- ★ The Great Bath found at Mohenjodaro was rectangular in shape. There were two flights of steps on the north and south leading into the tank, which was made watertight by setting bricks on the edge and using a mortar of gypsum. The Great Bath was a large rectangular tank in a courtyard surrounded by a corridor on all four sides. The Citadel suggests that it was meant for some kind of a special ritual bath.
- ★ The bones of cattle, sheep and goat have been found from Harappa but the bones of lion have not been found.
- ★ Curved bricks have been found at Chanhudaro.
- ★ Inamgaon (Maharashtra) is a post Harappan site. Here adults were often buried lying upright in the pit with their heads facing north. It was also a major center of Jorwe culture. Situated on the right bank of the Ghod river, it is considered the regional center of the Bhima valley.
- ★ Mehrgarh, an ancient site in the Indian subcontinent, is located near the modern city of Quetta.
- ★ The formation of the Indus Valley Civilization can be traced from the Mehargarh site.

4. The Vedic Age (1500-600 BC)

- After the decline of the Indus Valley Civilization around 1200 BC, the land was occupied by the Aryans around 1500 BC. The term Aryans means 'noble'.
- The land occupied by them was referred to as 'Sapta Sindhu' which means 'The Land of Seven Rivers'. The seven rivers included Sindhu (Indus), Vitasta (Jhelum),

Asikni (Chenab), Parushni (Ravi), Vipash (Beas), Shutudri (Sutlej) [all in Punjab] and the Sarasvati (Sarsuti) in Rajasthan. Other rivers were Drishadvati (Ghaggar) in Rajasthan, Kubha (Kabul), Suwastu (Swati), Krumu (Kurram) and Gomati (Gomal) [All in Afghanistan].

Original Homeland of Aryans According to Different Scholars

| Homeland | Scholar |
|----------------------------|--|
| Arctic Region | Bal Gangadhar Tilak |
| Tibet | Swami Dayanand Saraswati |
| Central Asia | Max Muller |
| Turkistan | Hun Feldt |
| Bactria | J.C. Rod |
| Sapta Sindhu | Dr. Avinash Chandra Das and Dr. Sampurnanand |
| Kashmir & Himalayan Region | Dr. L. D. Kala |
| Europe | Sir William Jones |
| Steppes | P. Nehring |
| Western Siberia | Morgan |

Time, Spread and Sources

| Geographical Range | North India |
|------------------------|------------------------------|
| Period | Iron Age |
| Time | 1500 BC (BCE) – 600 BC (BCE) |
| Sources | Vedic Literature |
| Nature of Civilisation | Rural |

- It is believed that the Aryans had migrated from Central Asia into the Indian subcontinent in the form of several waves during 2000 BC - 1500 BC. This can be proved by the Boghazkoi Inscription found in Asia Minor, Turkey. This Inscription mentions four vedic gods *i.e.* Indra, Varuna, Mitra and Nasatyas.
- Early Vedic (Rigvedic) Period (1500-1000 BC):** The only literary source for the knowledge of this period is the "Rig Veda".
- The Battle of Ten Kings (The Dasarajna War):** This war has been named Dasarajna after the ten kings who fought against Sudas (Bharata King of Tritsu Clan). Other ten kings were from the states of Purus, Yadus, Turvasas, Anus and Druhyus, Alinas, Pakhtas, Bhalanas, Sibis and Vishanins. This battle was fought on the bank of Parushni (Ravi) and Sudas emerged victorious in this battle.
- The Polity in Rig Vedic Period:** The basis of both social and political structures was the Kula (the family). The Grama, the Vis, the Jana, and the Rashtra were above the

Kula. A few Kula (family) came together to form a Grama (the village), and so forth.

| Unit | Head |
|-----------------------|-------------|
| Kula (the family) | Kulapa |
| Grama (the village) | Gramani |
| Vis (the clan) | Vispati |
| Jana (the people) | Gopa/Gopati |
| Rashtra (the country) | Rajan |

- The governing structure was patriarchal in nature. Although monarchy was the rule, there were some non-monarchical political systems.
- The Rashtra was ruled by a King or Rajan, and based on the primogeniture law, the royal lineage was hereditary. Most likely, an elective monarchy was also recognised.
- The king also had religious obligations. He protected the established order and moral principles.
- The Rig Veda mentions gatherings like the Sabha, Samiti, Vidath and Gana. Sabha was a committee of just, privileged and significant people. Sabha and Samiti, two democratic assemblies, served as restraints on kings' arbitrary rule. Later Vedas mention the Sabha's role as a court of law.
- Theft, burglary, stealing of cattle and cheating were some of the then prevent crimes.
- The Society in Rig Vedic Period:** The four varnas that made up the Rigvedic civilization were Brahmana, Kshatriya, Vaisya and Shudra. Based on the individuals' professions or jobs, society was categorised.
- Teachers and priests were referred to as Brahamanas, while administrators and kings were known as Kshatriyas, farmers, traders, and bankers as Vaishyas, and workers and artisans as Shudras.
- People chose these professions based on their aptitude and preferences; they were not hereditary as they would later become.
- A hymn from the Rig Veda illustrates how members of the same family chose different occupations and belonged to several varnas. In this hymn a person says: 'I am a singer; my father is a physician, my mother is a grinder of corn.'
- The cow was already deemed Aghanya *i.e.* not to be killed.
- Fire was sacred as it was regarded to be the intermediary between man and God. There were nearly 33 gods. Later day tradition classified them into 3 categories of terrestrial (prithvi sthana), aerial or intermediate (antariksh asthana) and celestial (dusthana) gods.
 - ❖ **Terrestrial (Prithvi Sthaniya):** Prithivi, Agni, Soma, Brihaspati and rivers.

- ❖ **Aerial/Intermediate (Antariksha Sthaniya):** Indra, Rudra, Vayu-Vata, Parjanya.
- ❖ **Celestial (Dusthaniya):** Daus, Surya (In 5 forms: Surya, Savitri, Mitra, Pushan, Vishnu), Varuna, Aditi, Usha and Asvin.
- Indra, Agni and Varuna were the most popular deities of Rigvedic Aryans.
 - ❖ **Indra or Purandara (destroyer of fort):** The most important god (250 Rigvedic hymns are devoted to him); who played the role of warlord and was considered to be the rain god.
 - ❖ **Agni:** The second most important god (200 Rigvedic hymns are devoted to him); fire god was considered to be the intermediary between the gods and the people.
 - ❖ **Varuna:** Personified water; was supposed to uphold Rita' or the natural order ('Ritasyagopa').
- Surya (Sun) was worshipped in 5 forms: Surya, Savitri, Mitra, Pushan and Vishnu.
 - ❖ **Surya (Sun):** God who used to drive daily across the sky in his chariot driven by seven horses.
 - ❖ **Savitri (the god of light):** The famous Gayatri Mantra is addressed to her.
 - ❖ **Mitra:** A solar god.
 - ❖ **Pushan:** The god of marriage; main function-guarding of roads, herdsmen and straying cattle.
 - ❖ **Vishnu:** A god which covered earth in three steps (Upakrama).
- **Soma:** Originally a plant yielding a strong beverage during Agnistoma sacrificial rites, maybe hemp/bhang, known as the king of plants; eventually identified as the moon. The Soma is credited with creating the ninth mandala of the Rig Veda, which includes 114 songs. Because of this, it is known as "the Soma Mandala."
- **The Economy in Rig Vedic Period:** The Aryans moved past the nomad phase. Yet cow herds were given a lot of attention. There were many tamed animals.
- Cats and camels were presumably unfamiliar to the Vedic people. Tiger was unknown, but they were familiar with other wild animals like lions, elephants and boars. There was probably not much transaction going on.
- Although markets and money existed, they were not widely used. Cows and fixed-priced gold ornaments served as the exchange's medium of exchange. There were no known coins. Complexity in product production became apparent.
- There were men working as carpenters, smiths, tanners, weavers, potters and maize grinders, among other occupations. There was a science for treating illnesses and wounds. There were surgeons who were experts.
- Along with herbs and drugs, charms and spells were regarded as equally potential in healing diseases.
- **OCP (Ochre Coloured Pottery) Culture:** 1500 BC-1000 BC.
- **Later Vedic Period (1000-600 BC):** During the later Vedic Period, the Aryan settlements covered virtually the whole of Northern India (Aryavarta). The centre of culture now shifted from Saraswati to Ganges (Madhya desa).
 - There was mention of more rivers such as Narmada, Sadanira (modern Gandak), Chambal etc.
 - The expansion of people towards the east is indicated in a legend of Satapatha Brahmana-how Videha Madhava migrated from the Saraswati region, crossed Sadanira and came to the land of Videha (modern Tirhut).
 - Emergence of Janapadas-Kuru (Combination of Purus and Bharatas), Panchala (Combination of Turvashas and Krivis), Kashi etc. in Doab region. Later Vedic literature mentions Vindhya mountain (Southern mountain). Reference to the territorial divisions the later Vedas gives three broad divisions of India, viz. Aryavarta (Northern India), Madhya desa (Central India) and Dakshinapatha (Southern India).
 - Large kingdoms and stately cities made their appearance in the later Vedic Period. In Taittiriya Brahmana we notice the theory of the divine origin of kingship.
 - The governmental machinery became more elaborate than before, as a sequel to the growth of the power of the king. New civil functionaries, besides the only civil functionary of the Rigvedic period, the purohita came into existence.
 - **These were:** The Bhagadudha (Collector of taxes), the Suta/Sarathi(the Royal herald or Charioteer), the Kshatri (Chamberlain), the Akshavapa (Courier). The military officials of the Rigvedic times, the Senani (the general) and the Gramani (the head of the village) continued to function.

12 Ratnins

| | |
|--------------|---------------------------------|
| Purohita | The Priest |
| Mahishi | The Queen |
| Yuvaraja | Crown prince |
| Suta/Sarathi | The Royal herald/The Charioteer |
| Senani | The General |
| Gramani | Head of the village |
| Kshata | Gateman/Chamberlain |
| Sangrahitri | Treasurer |
| Akshavapa | Courier |
| Bhagadudha | Collector of taxes |
| Palagala | Friend of King |
| Govikarta | Head of forest department |

- **Society in the Later Vedic Period:** As the time passed by, Yajnas became elaborate and complicated ceremonial, leading to the emergence of learned men known as Brahmanas.
- A group of people known as the Kshatriyas emerged to conquer and rule new lands as the Aryans spread to the east and south. The remaining Aryans established a distinct group known as the Vaishyas.
- The fourth class, the Shudras, consisted of non-Aryans. These social distinctions were flexible, though. In the later Vedic Period, the institution of the gotra, or clan, first developed.
- The higher castes were allowed to marry with the lower castes, but not with shudras. Pollution became a concept in society.
- Brahmins arranged four ashrams. The Jabala Upanishad has the earliest mention of the four Ashramas (the stages of life): Brahmacharya, Grihastha, Vanprastha and Sanyasa. The Ashrama system was established to achieve the four Purusharthas (Dharma, Artha, Kama, and Moksha).
- The status of women fell. Aitareya Brahmana claimed that a male is the family's protector whereas a daughter is the cause of unhappiness.
- There are three evils, according to Maitrayani Samhita: alcohol, women and dice.
- Although polygamy—a man having more than one wife—was common, monogamy—a man having only one wife—was the ideal. Women were not allowed to participate in the political assemblies.
- Yajnavalkya-Gargi dialogue (Brihadaranyaka Upanishad) indicates that some women had got higher education.



Do You Know?

★ In the Vedic period, the opponents of the Vedas were called Vitras.

- **The Religion in Later Vedic Period:** The earlier divinities Indra and Agni were relegated into the background while Prajapati (creator of the Universe, later known as Brahma), Vishnu (Patron god of Aryans) and Rudra (God of animals, later identified with Shiva/Mahesha) rose in prominence. Now Prajapati became the supreme God.
- Pushana, who protected cattle in the early Vedic Period, now became the god of Shudras. Brihadaranyaka Upanishad was first the work to give the doctrine of transmigration (Punarjanma/Samsara-chakra) and deeds (Karma).
- The early simple ceremonial of the Rigvedic Period gave place to elaborate sacrifices requiring the services of as many as 17 priests. In the later Vedas and Brahmanas sacrifices (Yajnas) came into prominence.
- **There were two varieties of sacrifices-**
 - ❖ **Rajasuya Yajna:** Royal consecration, which in its full form comprised a series of sacrifices lasting over a year. In later days it was replaced by simplified Abhisheka *i.e.* Anointment.

- ❖ **Vajapeya Yajna:** Drink of strength, which lasted for a period of seventeen days up to one full year.
- ❖ **Asvamedha Yajna:** Horse sacrifice, which lasted for three days.
- ❖ **Agnishtoma Yajna:** Sacrifice of animals dedicated to Agni, which lasted one day, although Yajnika (performer of Yajna) and his wife spent an ascetic life for a year before Yajna. On occasion of this Yajna, soma rasa was consumed.
- **The Economy in the Later Vedic Period:** Cattle raising started to be replaced by agriculture. At one point, 24 oxen were used to pull the plough. Manure was understood. Wheat, barley, beans, sesame and rice were all grown. There have been significant improvements in our understanding of metals. In addition to gold and ayas (either copper or iron), tin, silver, and iron were mentioned in the Rig Veda.
- **Vedic Literature:** The Vedic Literature has been classified into two categories *i.e.* Shrutis and Smritis.
 - ❖ **Shruti:** Vedic Literature is known as “Shruti” as it has been handed down from generation to generation by word of mouth. Please note that the term ‘Shruti’ means “To Hear”. The Shrutis comprise the four Vedas, the Brahmanas, the Aranyakas and the Upanishads.
- **Vedas:** These are called Apaurusheya (not created by man but God - gifted) and Nitya (existing in all eternity). There are four Vedas: Rig Veda, Sama Veda, Yajur Veda and Atharva Veda.
- The first three Vedas (Rig Veda, Sama Veda and Yajur Veda) are collectively known as Vedatrayi (Trio of Vedas).
 - ❖ **Rig Veda:** The Rig Veda is a Collection of hymns (lyrics). It is the oldest text in the world. It is also known as 'the first testament of mankind'. It contains 1028 hymns which have been divided into 10 mandalas.
 - ❖ **Sama Veda:** It is a book of chants and is associated with music. It has 1549 hymns and all hymns (excluding 75) were taken from the Rig Veda. The hymns of the Sama Veda were recited by Udgatri. The mantras of Samaveda were recited by Udgatri. This Veda is considered to be the original scripture of music.
 - ❖ **Yajur Veda:** This is a book of sacrificial prayers. The hymns of the Yajur Veda were recited by Adhvaryus. It has two parts *i.e.* Krishna Yajur Veda (Entirely Verse) and Shukla Yajur Veda (Both Verse and Prose).
 - ❖ **The Atharva Veda (book of magical formulae),** the fourth and the last one, contains charms and spells to ward off evils and diseases. For a very long time it was not included in the category of the Vedas.
- **Brahmanas:** Every Veda has several Brahmanas attached to it :
 - ❖ **Rig Veda-** Aitareya and Kaushitiki / Sankhyan.

- ❖ **Sam Veda-** Panchvisha (Tandya Maha Brahamana), Shadvish, Chhandogya and Jaiminaya.
- ❖ **Yajur Veda-** Shatapatha (the oldest and the largest Brahamana) and Taittiriya.
- ❖ **Atharva Veda-** Gopatha.
- **Upanishads:** The Upanishads are philosophical texts. They are generally called Vedanta, as they came towards the end of the Veda. There are 108 Upanishadas. Brihadaranyaka is the oldest Upanishada.
 - ❖ **Smriti:** It is a body of texts containing teachings on religion such as Ithihasas, Puranas, Tantras and Agamas. These are not eternal. They are constantly revised. The term 'Smriti' means definite and written literature. It comprises of 06 world *i.e.* Vedangas/Sutras, Smritis Dharmashastras, Mahakavyas (Epic), Puranas, Upvedas and Shad-Darshanas.
 - ❖ **Aranyakas:** Aranya means 'the forest'. These were written mainly for the hermits. The Aranyaka are the concluding portions of the Brahamanas.
- **Vedangas:** There are six Vedangas: Shiksha (Phonetics), Kalpa Sutras (Rituals), Vyakarana (Grammar), Nirukta (Etymology), Chhanda (Metrics) and Jyotisha (Astronomy): 'Vedanga Jyotisha' authored by Lagadh Muni is the oldest Jyotisha text.
- ❖ **Ayurveda (Medicine)** is associated with Rigveda while **Gandharva Veda (Music)** is associated with Sama Veda. **Dhanur Veda (Archery)** is associated with Yajur Veda while **Shilpa Veda (Science of Craft)** and **Arthaveda (Science of Wealth)** are associated with the Atharva veda.
- **Shad-Darshanas:** There are six schools of philosophies which are known as Shad-Darshanas. These are as follows:
 - ❖ Sankhya Darshana (Founder: Kapila and Basic text: Sankhya Sutra)
 - ❖ Yoga Darshana (Founder: Patanjali and Basic text: Yoga Sutra)
 - ❖ Nyaya Darshana (Founder: Gautama and Basic text: Nyaya Sutra)
 - ❖ Vaisheshika Darshana (Founder: Kanada and Basic text: Vaisheshika Sutra)
 - ❖ Mimansa/Purva Mimansa (Founder: Jaimini and Basic text: Purva Mimansa Sutra)
 - ❖ Vedanta/Uttar Mimansa (Founder: Badarayana and Basic text: Brahma Sutra/Vedanta Sutra)



Do You Know?

- ★ **Dharma Sutras** – The duties of rulers have been mentioned in the Dharma Sutras.
- ★ Dharma Sutras – The duties of rulers are written in the Dharma Sutras.
- **Mahakavyas:** There are mainly two Mahakavyas (Epics):
 - ❖ **The Ramayana or Adi Kavya** was authored by Valmiki. It is the oldest epic in the world. It consists of 24,000 shlokas *i.e.* verses (Originally 6,000, Later - 12,000, Finally - 24,000) in 7 Kandas. 1st and 7th Kandas were the latest additions.
 - ❖ **The Mahabharata** was authored by Ved Vyasa. It is the longest epic in the world. At present, it consists of 1,00,000 slokas *i.e.* verses and 18 Parvas with Harivamsa as a supplement. The Bhagavad Gita is extracted from Bishma Parvan of Mahabharata. Shanti Parva is the largest parva (chapter) of the Mahabharata. [Originally it had 8,800 shlokas and was known as Jay Samhita. Later it had 24,000 slokas and was known as Chaturvinshati Sahastri Samhita / Bharata. Finally, it had 1,00,000 and was known as Shatasahastri Samhita / Maha Bharata.
- **Puranas:** There are 18 famous Puranas. The **Matsya Purana** is the oldest Puranic text. The other important Puranas are the Bhagavata Purana, the Vishnu Purana and the Vayu Purana. They describe genealogies of various royal dynasties.
- **Upavedas:** The Upavedas (the auxiliary vedas) were traditionally associated with vedas:
 - ★ At one stage in the Vedic age, the king was called 'Gopati', which meant - lord of the cows.
 - ★ In the Rigvedic period, the main responsibility of the king was to protect his tribe.
 - ★ The social division in the early Vedic society was named Kshatriya which also included the warrior class.
 - ★ Balarama is a Hindu deity in whose images the plow is usually used as a weapon.
 - ★ Airavat the elephant is the vehicle of Indra.
 - ★ The war of Kurukshetra was fought for 12 days.
 - ★ The spirit of 'Vasudhaiva Kutumbakam' has been taught by Vedic culture.
 - ★ The central place of Aryan Culture during later Vedic Age was Doab of Ganga.
 - ★ Grihastha Ashram was the feeder of all other Ashrams.
 - ★ The elderlies were considered as the heads of families in Indian society.
 - ★ The treatise Ramayan is smaller in size to Mahabharata.

5. Mahajanapada Period (600 BC-325 BC)

- During the sixth Century BC (BCE) many territorial states emerged. These Mahajanpadas have been mentioned in Buddhist texts such as "Anguttar Nikaya".
- **These sixteen Mahajanpads were as follows:**
 - ❖ **Magadha (Patna, Gaya and Nalanda districts):** The first capital was Rajagriha and the later capital was Pataliputra.
 - ❖ **Anga and Vanga (Munger and Bhagalpur):** The capital was Champa. It was a prosperous business centre.

- ❖ **Malla (Deoria, Basti, Gorakhpur region):** The capital was Kushinagar. It was the seat of many other smaller kingdoms. Their main religion was Buddhism.
- ❖ **Vatsa (Allahabad and Mirzapur):** The capital was Kaushambi. The most important ruler of this kingdom was King Udayan.
- ❖ **Kashi (Benaras):** The capital was Varanasi. Though many battles were fought against the Kosala kingdom, eventually Kashi was merged with the Kosala kingdom.
- ❖ **Kosala (Ayodhya):** Its capital was Shravasti.
- ❖ **Vajji (Muzaffarpur and Vaishali):** Vajji was the seat of a united republic of eight smaller kingdoms of which Lichchavis, Janatriks, and Videhas were also members.
- ❖ **Kuru (Thaneswar, Meerut and present-day Delhi):** The capital city was Indraprastha.
- ❖ **Panchala (Western Uttar Pradesh):** Its capital was Kampila. Earlier a monarch state, it later became an independent republic. Kannauj was an important town in this kingdom.
- ❖ **Matsya kingdom (Alwar, Bharatpur and Jaipur):** Its capital was Viratanagar.
- ❖ **Ashmaka (Between Narmada and Godavari):** Its capital was at Pertaai and Brahamdatta was its most important ruler.
- ❖ **Gandhara (Peshawar and Rawalpindi):** Its capital Taxila was important as a trade and education center (Ancient Taxila university) during the later Vedic age.
- ❖ **Kamboj (Hazara district of Pakistan, North-East Kashmir):** Its capital was Rajapur. Hazara was an important trade and commerce center of this kingdom.
- ❖ **Avanti (Malwa):** Avanti was divided into two parts, north and south. The northern part had its capital at Ujjain and the southern part had its capital at Mahishmati.
- ❖ **Chedi (Bundelkhand):** Shaktimati was the capital of Chedi. The Chedi kingdom was spread between the Yamuna and Narmada rivers. One of the families from this kingdom later merged into the Kalinga kingdom from this royal family.
- ❖ **Shurasena (Braj Mandal):** Its capital was Mathura, and its most famous ruler was Avantiputra.

6. Jainism and Buddhism

- The Sixth Century BC (BCE) is regarded as an important period in the history of ancient India. A new civilisation began to develop in northern India, with the revival of trade and urbanisation during the sixth century BC (BCE). In this period of major political and social changes in north India, Buddha and Mahavira were born. In the century following their death, Buddhism and Jainism took root as major religions in India.



Do You Know?

- ★ Early Jain literature were written in Prakrit language and these include Agama and Sutra literature.
- **Jainism:** Jainism is one of the world's oldest living religions. Jainism grounds itself in 24 Tirthankaras.
- The last and 24th Tirthankara of the Jains was Vardhamana Mahavira.
- Vardhamana Mahavira was born in 599 BC (BCE) at Kundagrama near Vaishali. His mother was Trishala, a Lichchavi princess. He spent his early life as a prince and was married to a princess named Yashoda. The couple had a daughter.
- At the age of thirty, he left his home and became an ascetic. For over twelve years, Mahavira wandered from place to place, subjecting himself to severe penance and self-mortification.
- He was a kshatriya prince of the Lichchavis, a group that was part of the Vajji sangha. At the age of 30, he left home and went to live in a forest.
- Mahavira travelled extensively as a preacher in the kingdoms of Magadha, Videha and Anga. Magadha rulers Bimbisara and Ajatashatru were influenced by his teachings.
- After 30 years of preaching, Mahavira died at Pawapuri in 527 BC (BCE) at the age of seventy two.
- **Tri-rathnas or Three Jewels:** Mahavira exhorted the three – fold path for the attainment of moksha (Liberation from the cycle of birth and death) and for the liberation from Karma. They are:
 - ❖ **Right Faith (Samyak Darshan):** Belief in the teachings and wisdom of Mahavira.
 - ❖ **Right Knowledge (Samyak Jnana):** Belief in the teachings and wisdom of Mahavira.
 - ❖ **Right action (Samyak Charitra):** It refers to the Mahavira's observance of the five great vows *i.e.* Ahimsa, Honesty, Kindness, Truthfulness and Not coveting or desiring things belonging to others.
- **Jain Code of Conduct/Five Doctrines of Jainism:** Mahavira asked his followers to live a virtuous life. In order to live a life filled with sound morals, he preached five major principles to follow. They are:
 - ❖ **Ahimsa** - not to injure any living beings
 - ❖ **Satya** - to speak truth
 - ❖ **Asteya** - not to steal
 - ❖ **Aparigraha** - not to own property
 - ❖ **Brahmacharya** - Celibacy
- **Sects/Schools of Jainism:**
 - ❖ **Digambara:** Monks of this sect believe in complete nudity. Male monks do not wear clothes while female monks wear unstitched plain white sarees. Follow all five vows (Satya, Ahimsa, Asteya, Aparigraha

and Brahmacharya). Believe women cannot achieve liberation. Bhadrabahu was an exponent of this sect.

- ❖ **Shwetambara:** Monks wear white clothes. Follow only 4 vows (except brahmacharya). Believe women can achieve liberation. Sthulabhadra was an exponent of this sect.

- **Jain Councils:**

- ❖ **First Jain Council:** It was held at Patliputra in the 3rd Century B.C. and was presided over by Sthulbhadra. The compilation of 12 Angas was done to replace Purvas.
- ❖ **Second Jain Council:** It was held at Vallabhi(Gujarat) in 512 A.D. and was presided over by Devardhi Kshmasramana. It led to the final Compilations of 12 Angas and 12 Upangas.

- **Buddhism:** Gautama Buddha was the son of Suddhodana, the chief of a Kshatriya clan of the Sakyas of Kapilavastu in present-day Nepal and his mother's name was Mahamaya. His given name was Siddhartha. As he belonged to the Sakya clan, he was also known as 'Sakya Muni'.

- He was born in 540 BC in Lumbini near Kapilavastu. His mother, Mayadevi (Mahamaya), died after a few days of his birth and he was brought up by his step-mother Gautami. In order to divert his attention towards worldly affairs, his father got him married at the age of sixteen to a princess called Yashodhara. He led a happy married life for some time and had a son by name Rahul.

- In 512 BC, he left his palace and went into the forest in search of truth. This phenomenon is called Mahabhinishkramana. In the course of his wanderings, he sat under a peepal tree for several days until he attained enlightenment.

- The place where he attained enlightenment, the Mahabodhi temple, still exists in Bodh Gaya (Bihar). After his enlightenment, Buddha decided to impart his knowledge to the people.

- He went to Varanasi and gave his first sermon at Sarnath. He preached in the kingdoms of Magadha and Kosala. A large number of people became his followers including his own family. After forty five years of preaching, he breathed his last in 483 BC (BCE) at Kushinagar/Kushinara (near Gorakhpur in Uttar Pradesh) at the age of eighty. Ram Bhar Stupa was built on its remains.

- **Buddha's Four Noble Truths**

- ❖ Dukha (The truth of suffering)
- ❖ Samudaya (The truth of the cause of suffering)
- ❖ Nirodha (The truth of the end of suffering)
- ❖ Ashtangika-Marga (The truth of the path leading to the end of suffering)

- **Eight-Fold Paths:** It consists of various interconnected activities related to knowledge, conduct, and meditative practices.

- ❖ Right view (Samma Ditthi)

- ❖ Right intention (Samma Sāṅgkappa)
- ❖ Right speech (Samma Vecca)
- ❖ Right action (Samma Kammanta)
- ❖ Right livelihood (Samma Ajiva)
- ❖ Right mindfulness (Samma Sati)
- ❖ Right effort (Samma Vyayama)
- ❖ Right concentration (Samma Samadhi)

- **The Wheel of life:** It represents the Buddhist view of the world.



Do You Know?

- ★ **Chaitya** – A Buddhist shrine or a meditation hall.
- ★ **Viharas** – Monasteries/living quarters for monks.
- ★ **Stupas** – Built over the remains of Buddha's body, they are monuments of great artistic value.

- **The Split in Buddhism:** During the reign of Kanishka, the Buddhist monk Nagarjuna initiated reforms in the way Buddhism was being followed. As a result, Buddhism was split into two as Hinayana and Mahayana.

- ❖ **The Hinayana (Lesser Vehicle):** It was the original creed preached by Buddha. The followers of this form regarded Buddha as their guru and did not worship him as God. They denied idol worship and continued with the people's language, Pali.

- ❖ **Mahayana (Greater Vehicle):** In this sect, Buddha was worshipped as God and Bodhisattva as his previous avatar.

Buddhist Councils

| Order | Place | Patron king |
|--------|------------|-------------|
| First | Rajgriha | Ajatshatru |
| Second | Vaishali | Kalashoka |
| Third | Patliputra | Ashoka |
| Fourth | Kashmir | Kanishka |

- **Tripitakas:**

- ❖ The Sutta Pitaka consists of the main teaching or Dhamma of Buddha. It is divided into five Nikayas or collections:

- Digha Nikaya
- Majjhima Nikaya
- Samyutta Nikaya
- Anguttara Nikaya
- Khuddaka Nikaya

- ❖ The Vinaya Pitaka consists of rules of conduct and discipline applicable to the monastic life of the monks and nuns.

- ❖ The Abhidhamma Pitaka is a philosophical analysis and systematisation of the teaching and the scholarly activity of the monks.



Do You Know?

- ★ The word Dharmya is the Pali translation of the Sanskrit word Dharma.
- Other important Buddhist texts include Divyavadana, Dipavamsa, Mahavamsa, Milind Panha etc.



Do You Know?

- ★ Jainism had given the concept of 'Anuvrata'.
- ★ Faith towards Sangha is the element which was not mentioned in Dhamma.
- ★ The childhood name of Mahavira was Vardhamana.
- ★ Anand Temple is located in Bagan (Myanmar). It is a Buddhist temple built in 1105 AD during the reign of King Kyanzittha of the Pagan Dynasty. It was built at the beginning of the 12th century. The inspiration for the temple originated from the tales of Indian monks. It is known as the largest and the best - preserved temple of Bagan.
- ★ **Nayanars and Alvars:** In South India, the devotees of Lord Krishna (Vishnu) were called Alvar saints and the devotees of Lord Shiva were called Nayanar saints.
- ★ Sammed Shikhar, the holy place of the Jain community is located in Jharkhand. Both Digambara and Svetambara consider it to be the most significant Jain Tirtha (pilgrimage destination), as it is the location where twenty of the twenty-four Jain tirthankaras, together with numerous other monks, obtained Moksha.
- ★ Subandhu, Ghatkharpar, Kshapanak, Veersen were all the preachers of Jainism.
- ★ The first sermon of the Buddha, known as Dhammacakkappavattana, is symbolized by the wheel in Indian art.
- ★ Ajanta caves are located in Aurangabad (Maharashtra) are famous as Buddhist temples.
- ★ Rajgriha is situated in Bihar.

7. Rise of Magadha

- The political history of India from the 6th century BC onwards is the history of struggle between four states- Magadha, Kosala, Vatsa and Avanti for supremacy.
- Magadha was located in the centre of the Gangetic plain. After the jungles were removed, the alluvium proved to be incredibly fruitful, resulting in an abundance of food.



Do You Know?

- ★ The Magadha Empire was completely water-saturated, since the Ganga and Son river flowed through it.

● Haryanka Dynasty (544 BC-412 BC):

- ❖ **Bimbisara/Shronika (544 BC-492 BC):** He was the founder of the Haryanka dynasty. Magadha rose to prominence under Bimbisara's direction.
- ❖ He lived at the same time as Gautama Buddha. In order to further his expansionist policy, he married the princesses of Kosala (Kosaladevi/Maha Kosala/sister of Kosal monarch Prasenjit), Lichchhavi (Chellana-sister of Lichchhavi Head Chetaka), and Madra (Khemadughter of Madra monarch).
- ❖ He conquered Anga. When Avanti King Pradyota became ill with jaundice, he sent a royal physician, Jivaka, to Ujjain.
- ❖ **Ajatashatru/Kunika (492 BC - 460 BC):** Bimbisara was succeeded by his son Ajatashatru. After killing his father, Ajatashatru ascended to the throne.
- ❖ **Udayin (460 BC-440 BC):** Ajatashatru was succeeded by his son Udayin. His reign is significant because he moved the capital from Rajagriha to Pataliputra and built the city of Patliputra at the meeting point of the Son and Ganges rivers. Anuruddha, Munda and Naga-Dasak, all of whom were incapable of leading, succeeded Udayin.

- **Shishunaga Dynasty (412 BC-344 BC):** Nag-Dasak was unworthy to rule. So the people got disgusted and elected Shishunaga as the King, the minister of the last king. Kalashoka (Kakavarna) succeeded Shishunaga. His reign was significant because at Vaishali (383 BC), he called the Second Buddhist Council.

- **Nanda Dynasty (344 BC-323 BC):** Mahapadma Nanda overthrew the Shishunaga dynasty and founded the Nandas, a new line of kings. Mahapadma is referred to in both the Puranas and the Pali writings as Ugrasena, or Owner of a Great Army, and Sarvakshatrantak, or Uprooter of All Kshatriyas.

- Greek author Curtius claimed that Dhanananda was in charge of an army that included 3,000 elephants, 2,000 chariots, 20,000 cavalry, and 200,000 soldiers. Alexander's march to the Gangetic Valley was halted by Dhanananda's strength, which also terrorised Alexander.

- Around 322–21 BC, the Nanda dynasty came to an end, and Chandragupta Maurya established the Maurya dynasty.

● Foreign Invasions:

- ❖ Iranian Invasion- Darius's Invasion (518 BC)
- ❖ Macedonian Invasion-Alexander's Invasion (326 BC)
- In 326 BC, Alexander invaded India, after crossing the river Indus he advanced towards Taxila. He then challenged king Porus, ruler of the kingdom between the rivers Jhelum and Chenab. Irani and Unani called the Indus river as Hindu.
- Porus was defeated in the Battle of Hydaspes. Alexander captured Porus and, like the other local rulers he had defeated, allowed him to continue to govern his territory.

- Alexander remained in India for 19 months (326-325 B.C.), which were full of fighting in July 325 BC Alexander and his army returned westward for home. He reached Babylon in 323 BC and died at the age of 33 years.

8. Maurya Period (322 BC-185 BC)

- **Capital:** Pataliputra (present at Patna, Bihar)
- **Government:** Monarchy
- **Historical era:** c. 322 BC (BCE) – 187 BC (BCE)
- **Important Kings:** Chandragupta, Bindusara, Ashoka
- **Mauryan Kings:**
 - ❖ **Chandragupta Maurya:** The Mauryan Empire was the first largest empire in India. Chandragupta Maurya established the empire in Magadha.
 - ❖ During Chandragupta's reign, Seleucus, the general of Alexander, who had control over countries from Asia Minor to India, crossed the Indus only and was defeated by Chandragupta. Seleucus's ambassador, Megasthenes, is said to have stayed in India during the reign of Chandragupta and his account titled "Indica" is a useful record about Mauryan polity and society.
 - ❖ Bhadrabahu, a Jain monk, took Chandragupta Maurya to southern India. Chandragupta performed Sallekhana (Jaina rituals in which a person fasts unto his death) in Shravanabelagola (Karnataka).
 - ❖ **Bindusara:** His real name was Simhasena. He was the son of Chandragupta Maurya. He is also known as Amitrochates (destroyer of foes) by the Greek scholars while the Mahabhasya refers to him as Amitraghata (killer of enemies).
 - ❖ His sons were appointed as viceroys of the different provinces of the empire. Bindusara ruled for 25 years, and he must have died in 272 BCE. Ashoka was not his chosen successor, and the fact that he came to the throne only four years later in 268 BCE would indicate that there was a struggle between the sons of Bindusara for the succession.
 - ❖ During his rule, Bindusara succeeded in extending the Mauryan empire upto Karnataka. At the time of his death, a large part of the subcontinent had come under Mauryan suzerainty. He appointed his son Ashoka as a governor of Ujjain. After his death, Ashoka ascended the throne of Magadha.
 - ❖ **Ashoka:** Ashoka was one of the greatest rulers of history. He ruled the empire founded by his grandfather Chandragupta Maurya over 2300 years ago.
 - ❖ He was known as 'Devanam Piya' meaning 'beloved of the Gods'.



Do You Know?

- ★ Ashoka's favorite wife was Karuvaki.

- ❖ **Kalinga War:** Kalinga was the ancient name of coastal Orissa. Ashoka fought a war to conquer Kalinga in 261 BC. He was horrified when he saw the violence and bloodshed and so decided not to fight any more wars.
- ❖ He is the only king in the history of the world who gave up conquest after winning a war. The horror of war was described by the king himself in the Rock Edict XIII.
- ❖ Ashoka was one of the greatest kings of all times, and is regarded as the first ruler to maintain direct contact with his people through his inscriptions. The other names of the emperor include Buddhashakya (in the Maski edict), Dharmasoka (Sarnath inscription), Devanampiya (meaning beloved of the gods) and Piyadassi (meaning of pleasing appearance) given in the Sri Lankan Buddhist chronicles Dipavamsa and Mahavamsa.
- ❖ During Ashoka's reign, the Mauryan empire covered the whole territory from Hindukush to Bengal, and extended over Afghanistan, Baluchistan and the whole of India including Kashmir and the valleys of Nepal, except a small portion in the far south, which was occupied by Cholas and Pandyas according to the rock edict XIII and by Keralaputras and Satyaputras as per the rock edict II.



Do You Know?

- ★ Ashoka built Barabar caves for livelihood (Jehanabad Vihar) was constructed.
- ★ Ashoka sent his daughter Sanghamitra and his son Mahindra to Sri Lanka to propagate Buddhism.
- ★ **Lion Capitol of Ashoka:** The Emblem of the Indian Republic has been adopted from the Lion Capital of one of Ashoka's pillars located at Sarnath. The wheel from the circular base, the Ashoka Chakra is a part of the National Flag.
- ★ The credit for reading the inscriptions of Ashoka goes to James Prinsep and the credit for discovery goes to Telepanther.
- ★ According to the inscriptions of Ashoka, 'Indraprastha' was a city in the Magadha Empire. There was no provincial center.
- ★ Dhamek Stupa was originally built during the Maurya Dynasty/Empire in the 3rd century and was later rebuilt in 500 AD.
- ★ Information about life cycle, internal policy and foreign policy is available from the inscriptions of Ashoka.
- ★ In the Mauryan period, only the state had the right to mine.
- ★ The Sarnath Maurya Pillar Edict is located in the far eastern part of India.
- ★ According to Megasthenes, the society was divided into 7 castes during the reign of Chandragupta Maurya.
- ★ The capital of the eastern Indian province of the Mauryan Empire was at Tosali.
- ★ His edicts in the northwestern part of Ashoka's empire were written in the Kharosthi script.

- ★ The Karmantika was the head of industries and factories in the Mauryan administration.
- ★ Elephants were first used by the kingdom of Magadha in war.
- ★ Bimbisara, the ruler of Magadha, was a contemporary of the Buddha.
- ★ Before the establishment of the Mauryan Empire, the entire northern India was divided into sixteen Mahajanapadas and republics.
- ★ Sudarshan Lake was built by Pushyagupta, the provincial governor of Chandragupta Maurya. It was later repaired by Rudradaman I (Shaka ruler) in 150 AD.
- ★ Chandragupta also married the daughter of Selucus.
- ★ In Major Rock Edict XIII of the emperor Ashoka, we find the description of neighbour countries. It has a mention of Kamboj, Nabhaks, Bhoja, Andhra etc.
- ★ The National emblem of India has been taken from the pillar of Sarnath. The Sarnath pillar was established by Ashoka in 250 BC.
- ★ Rampurva's Ashoka pillar with Bull Capital located in Champaran (Bihar).
- ★ For the first time in Indian History, the registration of birth and death of people was introduced in Mauryan period.

9. Post-Mauryan India

- **The Sungas in the North:** The last Mauryan emperor, Brihadratha, was assassinated by his own general, Pushyamitra Sunga, who established his Sunga dynasty in Magadha. Pushyamitra made Pataliputra as his capital.
- The important rulers of Shunga Dynasty were:
 - ❖ Pushyamitra Shunga (185-148 BC)
 - ❖ Agnimitra (148-141 BC)
 - ❖ Bhagavata (114 - 82 BC)
 - ❖ Devbhuti (82-72 BC)
- **The Kanvas in the North:** The Kanva dynasty had four kings and their rule lasted only for 45 years. The history of Magadha after the fall of the Kanvas is devoid of any significance until the emergence of the Gupta dynasty. The Kanva rulers were:
 - ❖ Vasudeva
 - ❖ Bhumi Mitra
 - ❖ Narayana
 - ❖ Susarman
- **Satavahanas in the South:** The Kushanas in the north and the Satavahanas (Andhras) in the south flourished for about 300 years and 450 years, respectively. Simuka established this dynasty in 1st Century BC. He is said to have ruled for twenty-three years.



Do You Know?

- ★ Amaravati art style also developed during the time of Satavahana rulers. Also, the construction of Ajanta caves had started during his time.
- ❖ **Contributions of Indo-Greeks:**
 - **Coinage:** Indo-Greek rulers introduced a die system and produced properly shaped coins with inscription, symbols and engraved figures on them. Indians learnt this art from them.
 - **Sculpture:** The Gandhara School of Indian Art is heavily indebted to Greek influence. The Greeks were good cave builders. The Mahayana Buddhists learnt the art of carving out caves from them and became skilled in rock-cut architecture.
- ❖ **The Shakas:** The Indo-Greek rule in India was ended by the Shakas. Shakas as nomads came in huge numbers and spread all over northern and western India. The Shakas were against the tribe of Turki nomads.



Do You Know?

- ★ Saka rulers issued gold coins in North-Western India.
- ❖ Rudradaman (130-150 AD) was the most important and famous king of Shakas. His Junagadh/Girnar inscription was the first inscription in chaste Sanskrit.
- ❖ **The Parthians:** The Parthians were of Iranian origin and because of strong cultural connection with the Shakas, these groups were referred to in the Indian sources as Shaka-Pahlava.
- ❖ **The Kushanas:** The Kushanas formed a section of the yueh-chi tribes, who inhabited northwestern China in the remote past. In the first century BC, the yueh-chi tribes were composed of five major sections, of which the Kushanas attained political ascendancy over others.
- ❖ Kanishka was the greatest of all the Kushana emperors. He assumed sovereignty in 78 AD and proclaimed his rule by the foundation of a new era, which later became the Shaka era. The Kushana capital initially was Kabul. Later, it was shifted to Peshavar or Purushapura. The first gold coins in India were issued by the Kushan dynasty.



Do You Know?

- ★ The statues of Mathura of the Kushan period are made of spotted red stones.
- ★ The rulers of the Satavahana dynasty were known as the lords of 'Dakshinapatha'.
- ★ The greatest development took place in the field of art during the Kushan period.
- ★ Vindhyashakti was the founder of the Vakataka dynasty in ancient India.
- ★ Coins are the main source of information about Indo-Greek rulers.
- ★ Charak was the court physician of Kanishka.

10. The Sangam Age

- The word 'Sangam' refers to the association of poets who flourished under the royal patronage of the Pandya kings at Madurai. The poems composed by these poets are

| Sangam Period Dynasty | Modern Day City | Ancient Capital | Important Ruler | Important Ports | Emblem |
|-----------------------|-----------------|-----------------|--------------------|-----------------------------------|---------------|
| Cheras | Kerala | Vanji | Cheran Senguttuvan | Musiri, Tondi | Bow and Arrow |
| Cholas | Tamil Nadu | Uralyur, Puhar | Karikala | Kaveripattanam | Tiger |
| Pandyas | Tamil Nadu | Madurai | Neduncheliyan | Muziris (Muchiri), Korkai, Kaveri | Carp |

- The Cheras:** The Cheras ruled over large parts of modern-day Kerala. Vanji was the capital of the Cheras. Musiri and Tondi were the important seaports in this period. The emblem of Cheras is the 'bow and arrow'.
- The first-century Pugalur inscription has a reference to 3 generations of Chera kings. Senguttuvan (2nd century CE) was the prominent ruler of the Chera dynasty.
- Senguttuvan introduced in Tamil Nadu the Pattini cult or the worship of Kannagi as the ideal wife. He was the first to send an ambassador to China from South India.
- The Cholas:** The Chola kingdom of the Sangam period stretched across the modern-day Tiruchirappalli District, Tiruvarur District, Nagapattinam District, Ariyalur District, Perambalur district, Pudukkottai district, Thanjavur District in Tamil Nadu and Karaikal District.
- The Pandyas:** The Pandyas reigned over the Southern region of modern-day Tamil Nadu.



Do You Know?

- ★ Inscriptions, copper plates and literary sources are the source of information about the Sangam age. Arikamedu was a famous port of the Sangam period.
- ★ The Silapatikaram is considered one of the main sources of information about the Sangam age.
- ★ The Hathigumpha inscription of King Kharavela of Kalinga gives information about the Sangam age.
- ★ Ptolemy's Geography mentions the Sangam age.
- ★ The mausoleums and Nayak stone monuments provide evidence of the megalithic culture during the Sangam age.
- ★ Tolkappiyam and Ettuthogai, Pathinen Keej Kanakku and Pattinappalai and Silapathikaram and Manimekalai are literary works that form part of Sangam literature.
- ★ Tamizhgam during the Sangam age included the geographical area from Vengadam (Tirupati Hills) to Kanyakumari (Cape Comorin).
- ★ Chola ruler, Aditya I captured Kanchi by defeating Pallavas in 897 AD.
- ★ Marco Polo was a trader, investigator and adventurer from Venice. Marco Polo landed on the Coromandel Coast of India in 1292 AD after a two-year trip by sea across the Indian Ocean on his way home from China. He joined the Tamil Pandya kingdom around Tanjore.

collectively known as Sangam literature. The period in which these poems were composed is called the Sangam Age.

- Sangam Age is the period from the 3rd century BC to the 3rd century AD in south India.

11. Gupta Dynasty

- Gupta Empire was founded by Sri Gupta and it was succeeded by his son, Ghatotkacha. This dynasty rose to fame with rulers like Chandragupta-I, Samudragupta, etc. Details of some important Gupta Empire kings are given below:
 - ❖ **Sri Gupta:** The founder of the Gupta dynasty was Sri Gupta. He was succeeded by Ghatotkacha. These two were called Maharajas.
 - ❖ **Chandragupta I (320 – 330 A.D.):** Chandragupta I and he was the first to be called Maharajadhiraja (the great king of kings). He strengthened his position by a matrimonial alliance with the Licchavis. He married Kumaradevi, a princess of that family.
 - ❖ **Samudragupta (330-380 A.D.):** Samudragupta was probably the greatest of the rulers of the Gupta dynasty. The Allahabad Pillar inscriptions provide a detailed account of Samudragupta's reign. Samudragupta marched against the South Indian monarchs.



Do You Know?

- ★ Samudragupta's achievements are described by his court poet and army. It is found in the Prayag Prashasti of Nayak Harisena.
 - ❖ **Chandragupta II (380-415 A.D.):** Samudragupta was succeeded by his son Chandragupta-II or Chandragupta Vikramaditya.
 - ❖ Famous Chinese pilgrim, Fahien visited India during the reign of Chandragupta-II. Fahien provided valuable information on the religious, social and economic condition of the Gupta empire.



Do You Know?

- ★ Navratna resided in the court of Chandragupta II in which Kalidas was also included, his court language was Sanskrit and famous Mathematician and astronomer Aryabhatta also resides here.
 - ❖ **Kumaragupta:** Kumaragupta was the son and successor of Chandragupta-II. He laid the foundation of the Nalanda University which emerged as an institution of international reputation.
 - ❖ **Skandagupta:** Skandagupta who really faced the Hun invasion. He fought successfully against the Huns and saved the empire.



Do You Know?

- ★ This started the Gupta era 319-20 AD.

12. Post-Gupta Period

- Political situation became complex with the decline of the Guptas and the Vakataka rulers. Feudatories of the Guptas became independent in the North.

Ruling Dynasties

| North India | South India |
|--------------------------|---------------------|
| The Maitrakas | Ikshvakus |
| The Maukharis | Chalukyas of Badami |
| The Gaudas | Pallavas of Kanchi |
| The Hunas | The Kadamba Kingdom |
| Pushyabhutis of Thanesar | The Kalabhras |

- **The Pushyabhuti Dynasty:** The Pushyabhuti or Vardhana dynasty was founded at Thanesar (Kurukshetra district) by Pushyabhuti probably towards the beginning of the 6th century. Pushyabhuti were the feudatories of the Guptas but had assumed independence after the Hun invasions.
- The first important ruler of the dynasty was Prabhakara Vardhana (580-605 AD). Prabhakara Vardhana was succeeded by his eldest son Rajyavardhana (605-606 AD) Rajyavardhana was killed by Shashanka in 606 AD.
- After Prabhakara Vardhana died, his elder son Rajyavardhana ascended to the throne of Thanesar. Harsha had a sister, Rajyashri who was married to king Grahavarman of Kannauj. Sasanka, the Gauda king, killed Grahavarman and kept Rajyashri prisoner.
- This prompted Rajyavardhana to fight against Sasanka. But Sasanka killed Rajyavardhana. This led the 16-year old Harshavardhana to ascend the throne of Thanesar in 606 AD. He vowed to avenge his brother's murder and also rescue his sister.
- For this, he forged an alliance with Bhaskaravarman, the Kamarupa king. Harsha and Bhaskaravarman marched against Sasanka. Ultimately, Sasanka left for Bengal and Harsha became the king of Kannauj also.
- **Empire of Harsha:** King Harshvardhana's Empire on acquiring Kannauj, Harsha united the two kingdoms of Thanesar and Kannauj. He moved his capital to Kannauj. After the fall of the Guptas, North India was divided into many small kingdoms. Harsha was able to unite many of them under his command.
- However, Harsha's plans to conquer lands to the south were hampered when the Chalukya king, Pulakesin II defeated Harsha in 618-619 A.D. This sealed Harsha's southern territorial limit as the Narmada River.
- Even the feudatories were under the tight command of Harsha. Harsha's reign marked the beginning of feudalism in India. Hiuen Tsang visited India during Harsha's reign. He has given a very favourable account of king Harsha and his empire. He praises his generosity and justice.

- Harsha was a great patron of the arts. He himself was an accomplished writer. He is credited with the Sanskrit works Ratnavali, Priyadarshika and Nagananda. Banabhatta was his court poet and he composed the Harshacharita which is a historical biography of Harsha's life and deeds.
- Harsha generously supported Nalanda University. He had a good tax structure. 1/4th of all the taxes collected were used for charity and for cultural purposes.
- **Harsha's death:** Harsha died in 647 AD after ruling for 41 years. Since he died without any heirs, his empire disintegrated very soon after his death.



Do You Know?

- ★ In ancient times, rulers used to collect a tax called Bhag from the farmers.
- ★ The first rulers to issue gold coins in India were the Indo-Greeks.
- ★ Indo-Roman art was established in Kandahar.
- ★ During the Gupta period, the word 'Vidhi' was used for an administrative unit.
- ★ The Kadamba dynasty was founded by Mayurasharman.
- ★ Chalukya dynasty was established by Pulakeshin I, his capital was in Aihole.
- ★ The founder of the Rashtrakuta dynasty was Dantidurga, its capital was Manyakheta.
- ★ The title of Uttara Path Swami was assumed by the Pala ruler Dharmapala.
- ★ Queen Rudramadevi was the queen of the Kakatiya dynasty.
- ★ Badami (Vatapi) was the capital of Chalukyas.
- ★ Manu has described the Dead Sea as an extremely salty sea and it is said that no one drowns in it.
- ★ The Naing Thoja dynasty ruled the state of Manipur.
- ★ Bhojsagar Sarovar (pond) was built by the Parmar ruler Raja Bhoj.
- ★ The Kailash temple of Ellora was built by the Rashtrakuta ruler Krishna I.
- ★ During the Gupta period, gold coins were called Dinars from among the following.
- ★ In pre-Gupta times tin was not an item of export.
- ★ The forest state was referred to in Indian history as 'Atvika Rajya'.
- ★ The Gupta ruler Samudragupta is shown on his coins playing a musical instrument called Veena.
- ★ The Gupta age in ancient India has been called the 'Golden Age of India' because of the many achievements in the field of arts, science, and literature that Indians made under the Guptas.
- ★ Chandragupta II had Navratnas in his court and these included Amarsingh, Dhanvantari, Kalidas, Shanku, Kshapanak, Varahmihir, Vetal Bhatt, Ghatkharpar, Varruchi.
- ★ Fa hien had mentioned that "The employees earn salary while peasants plough the king's land". He also mentioned that in that kingdom, the people did not lock their houses.

- ★ The famous trade centre of Far West during the Gupta period was Paithan.
- ★ Pallava dynasty had divided the State into Nation (Rashtra), Kottam and Village (Gram).
- ★ The Vishnu Temple of Angkorvat situated in Kambuj was built by Suryaverma II (Khmer Empire) in 1112-13 AD.
- ★ The famous temples of Mahabalipuram were built during the reign of the Pallavas.
- ★ During the period of Harshavardhan (606-647 AD)

Nalanda was that Buddhist sites which served as an important Mahayana Buddhism centre.

- ★ Kalhan was the author of "Rajtarangini". This book describes the history of Kashmir during 12th Century AD. Kalhan was a court poet of Jaysimha of Chalukya Dynasty.
- ★ In the 19th century, the goats were mainly hearded by the Bakarmals of Kashmir.
- ★ The Eastern Chalukya dynasty, which ruled parts of South India between the 7th and 12th centuries, was founded by Kubja Vishnuvardhana.

Important Questions

1. According to 'Ramayana' Ratnakar was another name of -----
(A) Vishwamitra (B) Gautam
(C) Durvasa (D) Valmiki
2. In which among the following period Castel Huyuk was one the most famous sites ?
(A) Neolithic (B) Palaeolithic
(C) Mesolithic (D) Chalocolithic
3. The Harappan brought Gold from present-day.....in India.
(A) Telangana (B) Kerala
(C) Tamil Nadu (D) Karnataka
4. Which of the following was a port city of the Indus Valley Civilization?
(A) Dholavira (B) Kalibanga
(C) Lothal (D) Rakhigarhi
5. Which is the biggest building in Mohenjo Daro?
(A) Big bath
(B) Granary
(C) Pillar Hall
(D) Two Storeyed House
6. The Vedic civilization in India developed on the banks of the river -----
(A) Tapi (B) Godavari
(C) Narmada (D) Saraswati
7. In the context of Vedangas, which one of the following words refers to 'ritual'?
(A) Grammar (B) Education
(C) Aeon (D) Verses
8. Which of the following rivers was known as Purushani in the Vedic period?
(A) Chenab (B) Sutlej
(C) Diameter (D) Ravi
9. Who is the most prominent deity in 'Rigveda'?
(A) Indra (B) Agni
(C) Pashupati (D) Vishnu
10. What is Upanishad?
(A) Epic
(B) Story collection
(C) Source of Hindu philosophy
(D) Books of law
11. At which of the following places Lord Buddha attained enlightenment?
(A) Vaishali (B) Sarnath
(C) Bodh Gaya (D) Rajgir
12. What is the meaning of the word 'Jain Mimamsa' according to Jain philosophy?
(A) God
(B) Winner
(C) Free from shackles
(D) Qualified
13. With which religion is the book 'Tripitaka' related?
(A) Hindu (B) Jain
(C) Parsi (D) Buddhist
14. Where was the first Buddhist council held?
(A) Kashmir (B) Rajgriha
(C) Pataliputra (D) Vaishali
15. In which state of India are the caves of Ajanta and Ellora located?
(A) Kerala
(B) Odisha
(C) Maharashtra
(D) Jammu and Kashmir
16. When did Vikram Samvat begin?
(A) In 50 B.C (B) In 47 B.C
(C) In 55 B.C (D) In 57 B.C
17. Who among the following was the first grammarian of Sanskrit?
(A) Kalhana (B) Maitreyi
(C) Kalidas (D) Panini
18. Who among the following was the first scholar to understand the inscriptions of Ashoka?
(A) Alexander Cunningham
(B) James Prinsep
(C) James Taylor
(D) V Gordon Childe
19. Which script was used on Ashoka's inscription?
(A) Brahmi (B) Devanagari
(C) Gurmukhi (D) Sanskrit
20. Aryabhatta and Kalidas were in the court of which 'Gupta' ruler?
(A) Kumaragupta I
(B) Chandragupta II
(C) Samudragupta
(D) Skandagupta
21. Where did Harshavardhan used to hold his religious meetings?
(A) In Mathura (B) In Prayag
(C) In Varanasi (D) In Tamralipti
22. Who among the following performed a ritual called 'hiranya=garbha'?
(A) Krishna I
(B) Govinda I
(C) Dantidurga
(D) Dhruva Dharavarsha
23. Where is the 'Brihadeshwara Temple' of the time of Cholas located?
(A) Mysore
(B) Mahabalipuram
(C) Thanjavur
(D) Kanyakumari
24. Who was the founder of Vikramshila University?
(A) Chandragupta Maurya
(B) Kanishka
(C) Dharmapala
(D) Pulakeshin II
25. Who was the biggest ruler of Satavahana?
(A) Satakarni.
(B) Gautamiputra Satakarni
(C) Simuk
(D) Haal

Answer Key

1. (D) 2. (A) 3. (D) 4. (C) 5. (B)
6. (D) 7. (C) 8. (D) 9. (A) 10. (C)
11. (C) 12. (B) 13. (D) 14. (B) 15. (C)
16. (D) 17. (D) 18. (B) 19. (A) 20. (B)
21. (B) 22. (C) 23. (C) 24. (C) 25. (B)



Chapter 1

Number System

1. Important Terminology

1.1 Digits : 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 are defined as digits in Mathematics. We can create many numbers by using these digits. For example : 10, 123, 456, 789 etc.

1.2 Number System : There are mainly two types defined in the number system. These are :

I. Decimal Number System : It contains 0 to 9 digits. That's why it is called *decimal number system*. In this system, the numbers is read and written in two ways : Indian number system and International number system.

In the Indian number system or Hindi-Arabic system, the numbers are read and written as per their place values. These numbers are read as per the following table.

| Periods | Crores | | Lakhs | | Thousands | | Ones | | |
|---------|------------------------------|------------------------|--------------------------|--------------------|---------------------------|---------------------|------------------|-------------|------------|
| Value | 10,00,00,000 (Ten Crores) | 1,00,00,000 (Crore) | 10,00,000 (Ten Lakhs) | 1,00,000 (Lakh) | 10,000 (Ten Thousands) | 1,000 (Thousand) | 100 (Hundred) | 10 (Ten) | 1 (One) |
| | 10^8 | 10^7 | 10^6 | 10^5 | 10^4 | 10^3 | 10^2 | 10^1 | 10^0 |

In International number system, the numbers are read and written as per the following table.

| Periods | Millions | | | Thousands | | | Ones | | |
|---------|-----------------------------------|------------------------------|-------------------------|-------------------------------|--------------------------|---------------------|------------------|-------------|------------|
| Value | 100,000,000 (Hundred Millions) | 10,000,000 (Ten Millions) | 10,00,000 (Millions) | 100,000 (Hundred Thousand) | 10,000 (Ten Thousand) | 1,000 (Thousand) | 100 (Hundred) | 10 (Ten) | 1 (One) |
| | 10^8 | 10^7 | 10^6 | 10^5 | 10^4 | 10^3 | 10^2 | 10^1 | 10^0 |

Ex. : Number 14,542,786 can be read as Fourteen Millions Five Hundred Forty-two Thousand Seven Hundred Eighty-six.

II. Roman Number System : In this system, numbers are represented by Latin alphabets. The Roman numerals used in, are based on seven symbols or letters.

| | | | | | | | |
|----------------------------|---|---|----|----|-----|-----|------|
| Roman System | I | V | X | L | C | D | M |
| Hindu Arabic System | 1 | 5 | 10 | 50 | 100 | 500 | 1000 |

Ex. : 25 can be written as XXV and 101 as CI.

2. Digits of Number

- Units :** Digit 0 to 9 are called Unit digits. The smallest and the largest number of 1-digit are 0 and 9 respectively.

- Tens :** The numbers from 10 to 99 are called ten numbers. The smallest and the largest number of 2-digits are 10 and 99 respectively.
- Hundreds :** The numbers from 100 to 999 are called hundred numbers. The smallest and the largest number of 3-digits are 100 and 999 respectively.
- Thousands :** The numbers from 1,000 to 9,999 are called thousand numbers. The smallest and the largest number of 4-digits are 1000 and 9999 respectively.
- Ten Thousands :** The numbers from 10,000 to 99,999 are called ten thousand numbers. The smallest and the largest number of 5-digits are 10,000 and 99,999 respectively.
- Lakhs :** The numbers from 1,00,000 to 9,99,999 are called lakh numbers. The smallest and the largest number of 6-digits are 1,00,000 and 9,99,999 respectively.
- Ten Lakhs :** The numbers from 10,00,000 to 99,99,999 are called ten lakh numbers. The smallest and the largest number of 7-digits are 10,00,000 and 99,99,999 respectively.
- Crores :** The numbers from 1,00,00,000 to 9,99,99,999 are called crore numbers. The smallest and the largest number of 8-digits are 1,00,00,000 and 9,99,99,999 respectively.

3. Value of Digits

- Place Value**—Place value helps us determine the value of numbers. Our (base-10) number system contains numerals or digits only from 0 to 9, but we often need to use numbers greater than 9. We show numbers greater than 9 by using place value. Place value refers to the value of each digit in a number.

Ex. : In a number 489765, place value of 7 will be 7×100 units, *i.e.*, 700. Similarly, the place value of 8 will be $8 \times 10,000 = 80,000$.

- Face Value**—The actual value of a digit in a number is the digit itself. The place value of the digit is ignored in the number.

Ex. : In a number 59,438, the face value of 4 is 4, face value of 9 is 9 etc.

Note

If x and y be the tens digit and unit digit respectively, then the 2-digit number formed by these digits will be $10x + y$.

4. Comparison of Numbers

- When both numbers have unequal number of digits**
The number having more digits is greater. It means
..... 5-digit number > 4-digit number > 3-digit number

Ex. : Find out which is greater 5429683 or 65245893 ?

Sol. : Since, the first number 5429683 is of 7-digit number whether the second number 65245893 is of 8-digit. Therefore, the second number is greater than the first number.

• **When both numbers have equal number of digits**

In case of the equal number of digits, we have to check the place value of the left-most digit of both numbers. If the digits of both numbers are also equal, then we move to its next digit placed on the right side and repeat the process until we get the desired result.

Ex. : Arrange the following numbers in ascending order.

5403100, 5460860, 5458087, 5420378

Sol. : At first, we check the place value of the leftmost digit of each number. Then repeat the same process until we get the answer. Here, in each number, two leftmost digits are equal. After that, we check ten thousand place values and then arrange the digits in ascending order. Hence, we get

5403100 < 5420378 < 5458087 < 5460860

5. Classification of Numbers

There are several types of numbers exist in the number system for different purposes. These numbers are classified into different groups according to their properties. These are :

- **Natural Numbers :** Counting numbers starting from 1, 2, 3..., etc. are called natural numbers. It is represented by capital letter **N**. Its set is shown as
 $N = \{1, 2, 3, 4, 5, \dots\}$
- **Whole Numbers :** All natural numbers along with 0 is known as whole numbers. It is represented by capital letter **W**. Its set is shown as
 $W = \{0, 1, 2, 3, 4, \dots\}$
- **Even and Odd Numbers :** A number is even if it is a multiple of two, and is odd otherwise. Even numbers are denoted by capital letter **E** and odd numbers are denoted by capital letter **O**.
 $E = \{2, 4, 6, 8, \dots\}$ and $O = \{1, 3, 5, 7, \dots\}$
- **Integers :** Positive and negative counting numbers, as well as zero are called integers. Integers are denoted by capital letter **Z**.
 $Z = \{\dots -3, -2, -1, 0, 1, 2, 3, \dots\}$
- **Prime Numbers:** An integer with exactly two positive divisors : itself and 1, is called prime number. For example : 2, 3, 5, 7, 11, 13...etc. are few prime numbers. 2 is the smallest prime number.
- **Composite Numbers :** All those numbers greater than 1 that are not prime are called composite numbers. For example : 4, 6, 8, 9, 10 etc. are few composite numbers.

- **Rational Numbers :** Numbers that can be expressed as a ratio of an integer to a non-zero integer. Rational numbers are denoted by capital letter **Q**. All integers are rational, but the converse is not true.

$$Q = \left\{ \dots \frac{2}{3}, -1, 0, \frac{1}{4} \dots \right\}$$

- **Irrational Numbers :** All the real numbers that are not rational are called irrational numbers. Irrational numbers are denoted by **I**.

$$I = \left\{ \dots \frac{2}{3}, \sqrt{2}, \sqrt{3} \dots \right\}$$

- **Real Numbers**—They can be positive, negative or zero. All rational numbers are real, but the converse is not true.

6. Approximate Values of Numbers

Place values are considered to be the base to find approximation values in numbers. Approximation value of few place values is determined by the following methods.

- **Approximate value nearest tens place**—If the number at units place is less than 5 then it is rounded of zero otherwise add 1 to the tens place and keeps unit place as zero.
Ex. : 73 can be rounded off to 70, 156 can be rounded off to 160 and 4265 can be rounded off to 4270.
- **Approximate value nearest hundred place**—If the number at tens place is less than 5 then it is rounded of zero otherwise add 1 to the hundred place and keeps tens place and unit place as zero.
Ex. : 510 can be rounded off to 500, 9573 can be rounded off to 9600 and 53650 can be rounded off to 53700.
- **Approximate value nearest thousand place**—If the number at hundred place is less than 5 then it is rounded of zero otherwise add 1 to the thousand place and keeps hundred place, tens place and unit place as zero.
Ex. : 6240 can be rounded off to 6000, 17573 can be rounded off to 18000 and 553650 can be rounded off to 554000.

7. Divisibility Test of Numbers

- **Divisibility by 2 :**
If the unit digit of a number is any of 0, 2, 4, 6, 8, then the given number is divisible by 2.
Ex. : 84, 786, 282, 1008, 5000....., etc. are divisible by 2.
- **Divisibility by 3 :**
A number is divisible by 3, if the sum of all digits of the number is divisible by 3.
Ex. : 786, here $7 + 8 + 6 = 21$ (completely divisible by 3)
So, the number 786 will be divisible by 3.

- Divisibility by 4 :**
A number is divisible by 4, if the last two-digits of the number is divisible by 4.
Ex. : 3464, here 64 is the last two-digit number which is divisible by 4.
So, the number 3464 will be divisible by 4.
- Divisibility by 5 :**
A number is divisible by 5, if the unit digit of the number is either 0 or 5.
Ex. : 3125, 2010, 2015, 6580....., etc. are divisible by 5.
- Divisibility by 6 :**
A number is divisible by 6, if the number is divisible by the numbers 2 and 3.
Ex. : Test whether number 8202 is divisible by 6.
Sol. : (i) the unit digit of the number is 2 which is divisible by 2.
(ii) the sum of digits of the number = $8 + 2 + 0 + 2 = 12$ (divisible by 3)
Since, it is clear from (i) and (ii) that the number 8202 is divisible by both 2 and 3. So, the number will be divisible by 6.
- Divisibility by 7 :**
Take the last digit of the given number and double it. Subtract this number from the rest of the digits in the original number. If this new number is either 0 or if it is a number that is divisible by 7, then the given number is also divisible by 7.
Ex. : Test whether number 2492 is divisible by 7.
Sol. : Here, the unit digit of the number = 2
 $249 - 2 \times 2 = 245$ (divisible by 7). So, the number will be divisible by 7.
- Divisibility by 8 :**
A number is divisible by 8, if the last three-digits of the number is divisible by 8.
Example : Test whether number 6288 is divisible by 8.
Solution : Here, in the given number, 288 is the last three-digit number which is completely divisible by 8.
So, the number 6288 will be divisible by 8.
- Divisibility by 9 :**
A number is divisible by 9, if the sum of its digits is divisible by 9.
Example : Test whether number 7074 is divisible by 9.
Solution : Sum of all digits of the number = $7 + 0 + 7 + 4 = 18$ (divisible by 9).
So, the number 7074 will be divisible by 9.

- Divisibility by 11 :**
A number is divisible by 11, if difference between the sum of digits at odd places and the sum of digits at even places, is divisible by 11.
Example : Test whether number 86460 is divisible by 11.
Solution : Sum of the all digits at even places in the number = $6 + 6 = 12$
Sum of the all digits at odd places in the number = $8 + 4 + 0 = 12$
Their difference = $12 - 12 = 0$. So, the number 86460 will be divisible by 11.

8. Division Algorithm

The number which we divide is called the dividend. The number by which we divide is called the divisor. The result obtained is called the quotient. The number left over is called the remainder. Some formula are given below for Division based questions.

- Dividend = Divisor \times Quotient + Remainder

- Divisor = $\frac{\text{Dividend} - \text{Remainder}}{\text{Quotient}}$

- Quotient = $\frac{\text{Dividend} - \text{Remainder}}{\text{Divisor}}$

Example : In a question, the divisor is 4 times the quotient and 2 times the remainder. If the remainder is 20, then find the value of dividend.

Solution : According to Question,

$$\text{Divisor} = 2 \times \text{Remainder} = 2 \times 20 = 40 \quad \dots(1)$$

And, Divisor = $4 \times$ Quotient

$$\Rightarrow 4 \times \text{Quotient} = 40 \quad [\text{from eq.(1)}]$$

$$\Rightarrow \text{Quotient} = 40/4 = 10$$

$$\therefore \text{Dividend} = 40 \times 10 + 20 = 400 + 20 = 420$$

9. Whole Numbers

We start counting from the number 1. Hence 1 is the first natural number and the next natural number is 2 which is obtained by adding 1 to the first number. Hence, numbers are represented in two ways according to their orderliness :

- Predecessor :** The natural number immediately preceding a natural number is its predecessor.

Example : Predecessor number of 65 = $65 - 1 = 64$

Predecessor number of 127 = $127 - 1 = 126$

- Successor :** The natural number immediately next to any natural number is its successor.

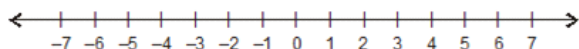
Example : Successor number of 785 = $785 + 1 = 786$

Successor number of 109 = $109 + 1 = 110$

10. Integers

The set of all negative numbers and positive numbers on either side of the zero marked on the number line is called an integer.

$-5, -4, -3, -2, -1, 0, 1, 2, 3, 4,$ and 5 all are the integers. On the number line, integers are represented as follows :



11. To Find Unit's Digit

Following is the method to find the unit digit in product of numbers and in power form of number :

I. In product of numbers—We find the product of unit digits of all numbers to find the unit digit in the product of numbers. The unit digit of obtained product is equal to the unit digit in product of given numbers.

Ex. : Find the unit digit in product of $786 \times 78 \times 687$

- (A) 4 (B) 5 (C) 6 (D) 2

Sol. (C) : Here, we multiply the unit digits of all numbers in $786 \times 78 \times 687$.

$$= \text{Unit digit in } 6 \times 8 \times 7$$

$$= \text{Unit digit in } 336 = 6$$

So, 6 will be the unit digit in the given product.

II. In Exponential number :

(i) For odd numbers : When unit digit is an odd number excluding 5, then

$$(\times \times \times 1)^n = (\times \times \times 1)$$

$$(\times \times \times 3)^{4n} = (\times \times \times 1)$$

$$(\times \times \times 7)^{4n} = (\times \times \times 1)$$

$$(\times \times \times 9)^n = (\times \times \times 1), \text{ if } n \text{ is an even number}$$

$$= (\times \times \times 9), \text{ if } n \text{ is an odd number.}$$

Ex. : Find the unit digit in $(27)^{43}$

- (A) 3 (B) 4 (C) 5 (D) 6

Sol. (A) : Unit digit in $(27)^{43}$

$$= \text{Unit digit in } (7)^{43}$$

$$= \text{Unit digit in } (7)^{4 \times 10 + 3}$$

$$= \text{Unit digit in } (7)^3$$

$$= 3$$

(ii) For Even numbers :

$$(\times \times \times 2)^{4n} = (\times \times \times 6)$$

$$(\times \times \times 4)^{2n} = (\times \times \times 6)$$

$$(\times \times \times 6)^n = (\times \times \times 6)$$

$$(\times \times \times 8)^{4n} = (\times \times \times 6)$$

Ex. : Find the unit digit in $(44)^{69}$

- (A) 5 (B) 4 (C) 6 (D) 2

Sol. (B) : Unit digit in $(44)^{69}$

$$= \text{Unit digit in } (4)^{69}$$

$$= \text{Unit digit in } (4)^{2 \times 34 + 1}$$

$$= \text{Unit digit in } (6 \times 4) = 4$$

Note : If unit digits of a number is 0, 1, 5 and 6, then the unit digit in exponent of that number will also be 0, 1, 5 and 6 respectively.

12. Some Important Types

- Sum of natural number from 1 to $n = \frac{n(n+1)}{2}$

Ex. : Find the sum of first 25 natural numbers.

Sol. : Required sum $= \frac{n(n+1)}{2}$
 $= \frac{25(25+1)}{2}$

$$(\because n = 25)$$

$$= 25 \times 13 = 325$$

- Sum of first n even numbers $= n(n+1)$

Ex. : Find the sum of first 10 even numbers.

Sol. : Required sum $= n(n+1)$
 $= 10(10+1)$
 $= 10 \times 11 = 110$

- The sum of first n odd numbers $= n^2$

Ex. : Find the sum of first 7 odd numbers.

Sol. : Required sum $= n^2$
 $= (7)^2 = 49$

- Sum of squares of first n natural numbers

$$(s) = \frac{n(n+1)(2n+1)}{6}$$

Ex. : What will be the sum of squares of first 12 natural numbers ?

Sol. : Required sum $= \frac{n(n+1)(2n+1)}{6}$
 $= \frac{12(12+1)(2 \times 12+1)}{6}$
 $= 2 \times 13 \times 25 = 650$

- Sum of squares of even numbers from 1 to n

$$= \frac{n(n+1)(n+2)}{6}$$

Ex. : What will be the value of $2^2 + 4^2 + 6^2 + \dots + 18^2 + 20^2$?

Sol. : $n = 20$

$$\text{Required Sum} = \frac{20(20+1)(20+2)}{6}$$

$$= \frac{20 \times 21 \times 22}{6} = 1540$$

- Sum of squares of odd numbers from 1 to n .

$$= \frac{n(n+1)(n+2)}{6}$$

Ex. : What will be the value of $1^2 + 3^2 + 5^2 + \dots + 19^2 + 21^2$.

Sol. :

$$\begin{aligned} n &= 21 \\ \text{Required sum} &= \frac{n(n+1)(n+2)}{6} \\ &= \frac{21 \times 22 \times 23}{6} = 1771 \end{aligned}$$

- Sum of cubes of first n natural numbers

$$(s) = \left[\frac{n(n+1)}{2} \right]^2$$

Ex. : What will be the sum of cubes of first 5 natural numbers ?

$$\begin{aligned} \text{Sol. :} \quad \text{Required sum} &= \left[\frac{n(n+1)}{2} \right]^2 \\ &= \left[\frac{5 \times (5+1)}{2} \right]^2 \\ &= (5 \times 3)^2 = (15)^2 = 225 \end{aligned}$$

- Total No. of n digit = $9 \times 10^{n-1}$

Ex. : Find the total number of two digit number between 1 to 100.

$$\begin{aligned} \text{Sol. :} \quad \text{Required numbers} &= 9 \times 10^{n-1} \\ \therefore \text{Here } n &= 2, \\ \therefore \text{Numbers} &= 9 \times 10^{(2-1)} \\ &= 9 \times 10 = 90 \end{aligned}$$

Important Questions

- On dividing a number by 38, we get 90 as a quotient and 19 as a remainder. What is the number ?
(A) 3401 (B) 3382
(C) 3458 (D) 3439
- What will be the remainder on dividing $141 \times 142 \times 143$ by 6 ?
(A) 0 (B) 2
(C) 4 (D) 5
- How many natural numbers are there between 1000 and 2000, which divided by 341, leaves remainder 5 ?
(A) 3 (B) 2
(C) 4 (D) 1
- Number 222333444 will be divisible by :
(A) 3
(B) 37
(C) 11
(D) 3 and 37
- Fill the smallest digit that will make 93856 ? 294 divisible by 9.
(A) 0 (B) 4
(C) 5 (D) 8
- Which number will always divide a 6 digit number of the form $xyxyxy$?
(where $1 \leq x \leq 9, 1 \leq y \leq 9$)
(A) 1010 (B) 10101
(C) 11011 (D) 11010
- The smallest number which added to 756896, the resulting number is multiple of 11, is :
(A) 1 (B) 2
(C) 3 (D) 5
- If a number $657423547x46$ is divisible by 11, then find the value of x .
(A) 7 (B) 9
(C) 8 (D) 6
- The last digit of 3^{40} is :
(A) 1 (B) 3
(C) 7 (D) 9
- The unit digit of $246!$ is
(A) 0 (B) 6
(C) 4 (D) 2
- The last 2 digits of a 200 digit number 1230123001230001230000.....are :
(A) 00 (B) 01
(C) 12 (D) 23
- The last two digit of the product 2345×6789 is :
(A) 35 (B) 15
(C) 05 (D) 25
- How many digits are required to write numbers from 1 to 50 ?
(A) 100
(B) 92
(C) 91
(D) 50
- Find the Number of zero in the right had of $625 \times 101 \times 2 \times 155$:
(A) 0 (B) 1
(C) 28 (D) 25
- If the digits in the unit and tens place of a two-digit number are interchanged, then the new number is 63 more than the original number. Suppose the digit in the unit place of the original number be x then all the possible values of x will be :
(A) 7, 8, 9
(B) 2, 7, 9
(C) 0, 1, 2
(D) 1, 2, 8
- The sum of a two-digit number and the number formed by reversing its digits is a perfect square number, then how many of such number exists ?
(A) 5 (B) 6
(C) 7 (D) 8

Solutions

- (D) **By Remainder Theorem,**
Dividend = Divisor \times Quotient
+ Remainder
 $= 38 \times 90 + 19$
 $= 3420 + 19$
 $= 3439$
- (A) $141 = 3 \times 47$ and $142 = 2 \times 71$
 $\therefore \frac{141 \times 142 \times 143}{6}$

$$= \frac{3 \times 47 \times 2 \times 71 \times 143}{6}$$

which is exactly divisible by 6, so remainder = 0

3. (A) According to the question,
 First number = $341 \times 3 + 5$
 $= 1023 + 5 = 1028$
 Second number = $341 \times 4 + 5$
 $= 1364 + 5 = 1369$
 Third number = $341 \times 5 + 5$
 $= 1705 + 5 = 1710$
 Fourth number = $341 \times 6 + 5$
 $= 2046 + 5$
 $= 2051$

which is greater than 2000
 So, required natural numbers between 1000 and 2000 = 3

4. (D) Digits 2, 3 and 4 appear three times in number 222333444. So, this number will exactly divisible by 3 and 37

Second Method :

$$222, 333, 444$$

$$222 + 333 + 444 = 999$$

$$999 - 333 = 666$$

666 is a multiple of 37
 222333444 will be divisible by 37

Divisibility by 3

$$2 + 2 + 2 + 3 + 3 + 3 + 4 + 4 + 4 = 27$$

27 is divisible by 3

So, 222333444 is divisible by both 3 and 37

5. (D) By the divisibility rule of 9, if the sum of all digits of the given number is divisible by 9, then the number will also be divisible by 9
 So, $(9 + 3 + 8 + 5 + 6$

$$+ ? + 2 + 9 + 4) / 9$$

$$\Rightarrow \frac{46 + ?}{9}$$

\therefore On putting minimum value 8 in place of ?, the number will be divisible by 9.

6. (B) Writing the given number in the form of place values of xy

$$xyxyxy$$

$$= xy \times 10000 + xy \times 100 + xy \times 1$$

$$= xy(10000 + 100 + 1)$$

$$= xy(10101)$$

So, the number will be exactly divisible by 10101.

7. (C) By divisibility rule of 11
 Sum of digits at even place (E)
 $= 5 + 8 + 6 = 19$

$$\text{Sum of digits at odd place}$$

$$= 7 + 6 + 9 = 22$$

\therefore By rule,
 $O - E = 22 - 19 = 3$
 So, we have to add 3 in the above number to be divisible by 11.

8. (B) $6 + 7 + 2 + 5 + 7 + 4 = 31$
 (Sum of odd digits)

$$\text{and } 5 + 4 + 3 + 4 + x + 6 = x + 22$$

$$\text{(Sum of even digits)}$$

By divisibility rule of 11
 $x + 22 - 31 = 0$
 $x - 9 = 0$ or $x = 9$

9. (A) $3^{40} = 3^{4 \times 10} = (3^4)^{10} = (81)^{10}$

\therefore The last digit in 3^{40} will be 1.

10. (A) $246! = 246 \times 245 \times 244 \times 243 \dots 1$
 \Rightarrow Zero will be formed by 2 and 5.

So, The unit digit of $246!$ will be 0.

11. (A) By general understanding,
 In the given 200 digit number, zero are increasing after 123 digits. So it is clear that last digit will also be 100 of the above number.

12. (C) To find the last two digits of the product ab , we have to find the remainder when ab is divided by 100

$$(2345 \times 6789) \text{ mod } 100$$

$$= [2345 \text{ mod } 100 \times 6789 \text{ mod } 100] \text{ mod } 100$$

$$= [45 \times 89] \text{ mod } 100$$

$$= 4005 \text{ mod } 100 = 05$$

13. (C) Number of digits

$$1 \text{ to } 9 \quad - 1 \times 9 = 9$$

$$10 \text{ to } 19 \quad - 2 \times 10 = 20$$

$$20 \text{ to } 29 \quad - 2 \times 10 = 20$$

$$30 \text{ to } 39 \quad - 2 \times 10 = 20$$

$$40 \text{ to } 49 \quad - 2 \times 10 = 20$$

$$50 \quad - 2 \times 1 = 2$$

$$\hline \text{Total digits} = 91$$

14. (B) $625 \times 101 \times 2 \times 155$
 Zero will be formed by 2 and 5.

$$\text{So, } 625 = 5 \times 5 \times 5 \times 5 \times 1$$

$$101 = 101 \times 1$$

$$2 = 2 \times 1$$

$$155 = 5 \times 23 \times 1$$

$$\text{So, no. of 2's} = 1$$

$$4 \text{ no. of 5's} = 5$$

$$\Rightarrow \text{no. of zeroes} = 1$$

15. (A) Let, two-digit number = $10y + x$

According to the question,

$$10x + y - (10y + x) = 63$$

$$9x - 9y = 63$$

$$x - y = 7$$

So, it is clear that, we will get $y = 0, 1, 2$ for $x = 7, 8, 9$

16. (D) Let, two-digit number = $10x + y$

According to the question,

$$10x + y + 10y + x = \text{perfect square number}$$

$$\Rightarrow 11(x + y) = \text{perfect square number}$$

So, the value of $x + y$ must be 11 to be a perfect square number.

\therefore Possible pairs—(2, 9), (9, 2), (3, 8), (8, 3), (4, 7), (7, 4), (5, 6) and (6, 5)

$$\Rightarrow \text{Total numbers} = 8$$

□□

Chapter 1

Coding-Decoding

1. Coding

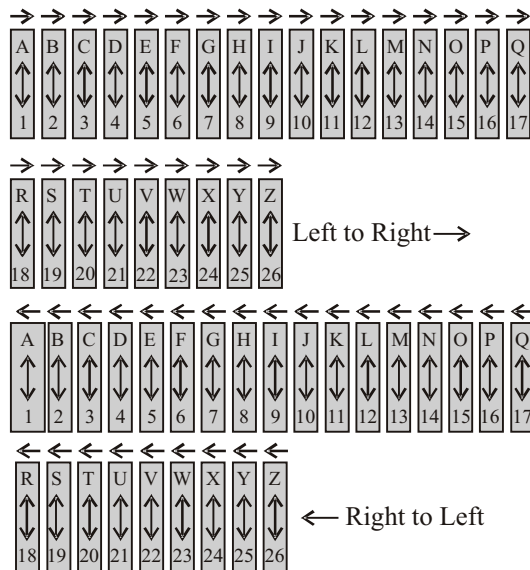
When any letter/word/sentence is written and said in such a language that hides the actual meaning of that particular letter/word/sentence from others except the desire person.

2. Decoding

It finds out the actual meaning of a coded letter/word/sentence. Generally, coding is done on the basis of the letters of the English alphabet and their corresponding positions.

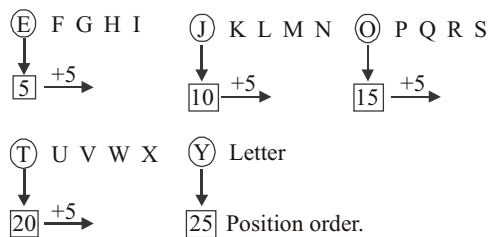
3. The Position of Letters

There are 26 letters (A to Z) in English alphabet. The position of the letters are fixed in English alphabets *i.e.*, if letter A is 1, B is 2, C is 3.....X is 24, Y is 25 and Z is 26. *i.e.*,



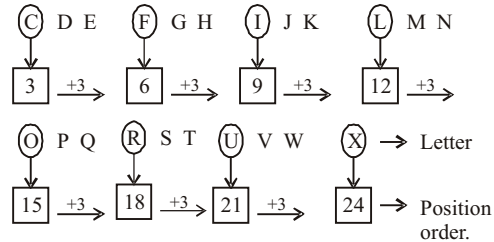
Form and order positions of letters can be learn in the following ways :

I. It should be learnt by the formulae 'EJOTY'. Here is a gap of four letters between each letter.



EJOTY sounds like a girl that is 'JOTI' So it could be easily remember by this name.

II. It should be learnt by the formulae 'CFILORUX'. Here is a gap of two letters between each letter.



CFILORUX Sounds like an Injection name because the Injections which are prescribed by doctors are having strange names.

4. Opposite Letters

Questions based on coding-decoding are also found on the basis of the opposite letters. First we know that what are opposite letters ? Opposite letters can be learnt in the following way :

Ex. In English alphabet, the first letter from left is A and the first letter from right is Z, are opposite to each other.

The second letter from left side is B and the second letter from right side is Y, are opposite to each other.

i.e.,

| | | | | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| From Beginning | A | B | C | D | E | F | G | H | I | J | K | L | M |
| From End | Z | Y | X | W | V | U | T | S | R | Q | P | O | N |
| | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 |

Trick to Remember

| | | | | | | |
|-------------|---------------|------------------|----------------|-----------|--------|-------|
| A | B | C | D | E | F | |
| ↕ | ↕ | ↕ | ↕ | ↕ | ↕ | |
| Z | Y | X | W | V | U | |
| (A to Z) | (Boy) | (Crax) | (Dew) | (Evening) | (Few) | |
| G | H | I | J | K | L | M |
| ↕ | ↕ | ↕ | ↕ | ↕ | ↕ | ↕ |
| T | S | R | Q | P | O | N |
| (G.T. Road) | (Honey Singh) | (Indian Railway) | (Jaipur Queen) | (P.K.) | (Love) | (Man) |

5. Letter Coding

Letter coding based on alphabets or words which is given on some pattern which looks like a code and the candidate needs to analyze the pattern and give the answer.

First, you have to observe both letter codes, then notice the position of letter and search the common pattern.

Ex. 1. If in a certain code language 'RAMESH' is written as 'HSEMAR' then how will 'CREATE' be written in language?

- (A) TEACRE (B) ETAECR
(C) ETAERC (D) ETACRE

Sol. (C) : As,

R A M E S H → H S E M A R
1 2 3 4 5 6 6 5 4 3 2 1

Similarly,

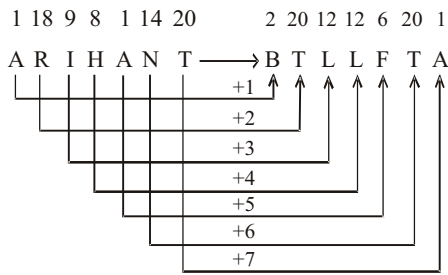
C R E A T E → E T A E R C
1 2 3 4 5 6 6 5 4 3 2 1

Ex. 2. If 'ARIHANT' is coded as 'BTLLFTA' then how will be 'HONESTY' be written in that code?

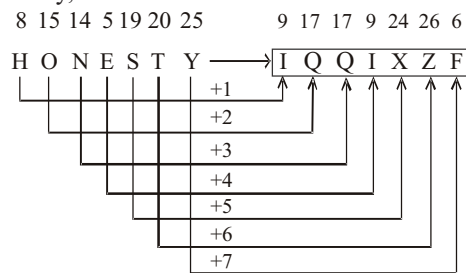
- (A) IQQIZFX (B) IQQXIZF
(C) IQQIXZF (D) IQQIXFZ

Sol. (C) : The first, second, third, fourth, fifth, sixth, seventh letters of the word are moved one, two, three, four, five, six, seven, letters forward respectively to obtain the code.

As,



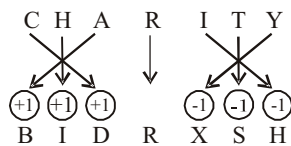
Similarly,



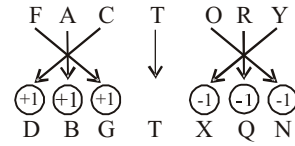
Ex. 3. If the code of 'CHARITY' is written as 'BIDRXSH' and the word 'FACTORY' is written as 'DBGTXQN' then how to write 'HISTORY' in same language?

- (A) UKJTWPM (B) TJNQTX
(C) TJITZSP (D) DBGTXQN

Sol. (D) : As,



Similarly,



6. Number Coding

In number coding, either numerical code or alphabetical letters is assigned to the word. The candidate will have to observe and guess the hidden code of two or more sets of numbers. The candidate will have to use this code to generate other numbers.

Ex. 1. If in a certain code Language 'RAMAN' is written as 23.5 and 'CAP' is written as '10' then how will 'CAPACITY' be written in that code?

- (A) 48 (B) 39
(C) 49 (D) 35

Sol. (B) : Sum of corresponding letters positions

$$\begin{array}{cccccc} & & & & & 2 \\ R & A & M & A & N & \\ 18 & 1 & 13 & 1 & 14 & \\ \hline 18+1+13+1+14 & = & \frac{47}{2} & = & 23.5 & \end{array}$$

$$\begin{array}{ccc} C & A & P \\ \text{and } 3 & 1 & 16 \end{array}$$

$$\frac{3+1+16}{2} = \frac{20}{2} = 10$$

Similarly,

$$\begin{array}{cccccc} C & A & P & A & C & I & T & Y \\ 3 & 1 & 16 & 1 & 3 & 9 & 20 & 25 \end{array}$$

$$\frac{3+1+16+1+3+9+20+25}{2} = \frac{78}{2} = \boxed{39}$$

Ex. 2. If the code no. of 'BEG' is 42 and 'AM' is 28 then find the code no. of 'TEA'?

- (A) 87 (B) 68
(C) 78 (D) 26

Sol. (C) : B E G ⇒ (2 + 5 + 7) × 3 ⇒ 42

$$A M ⇒ (1 + 13) × 2 ⇒ 28$$

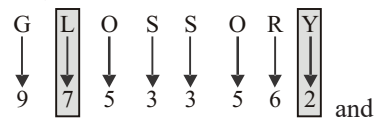
Therefore,

$$T E A ⇒ (20 + 5 + 1) × 3 ⇒ \boxed{78}$$

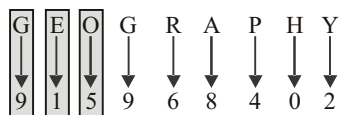
Ex. 3. If 'GLOSSORY' is coded as '97533562' and 'GEOGRAPHY' is coded as '915968402', then 'GEOLOGY' can be coded as :

- (A) 9156927 (B) 9157592
(C) 9057592 (D) 9157591

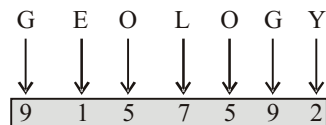
Sol. (B) : As,



and



Similarly,



7. Word coding

In a word coding, a confusing code is provided by giving a different name for the word. A series of word is given and each word of this series is coded with another word.

Candidates are required to determine the code for a word and give the answer.

Ex. If 'WHITE' is called 'BLUE', 'BLUE' is called 'RED', 'RED' is called 'YELLOW', 'YELLOW' is called 'GREEN', 'GREEN' is called 'BLACK', 'BLACK' is called 'VIOLET' and 'VIOLET' is called 'ORANGE', what would be the colour of human blood ?

- (A) RED
- (B) GREEN

- (C) YELLOW
- (D) ORANGE

Sol. (C) : WHITE → BLUE → RED → YELLOW → GREEN → BLACK → VIOLET → ORANGE

The colour of human body is 'RED' and as given. 'RED' is called 'YELLOW'. So the colour of human body is 'YELLOW'.

8. Mix Coding

Ex. In a certain code language, 'go for morning walk' is written as '\$*?#', 'good for health' is written as '£?@' and 'good to walk fast' is written as '+@↑#', then what is the code for 'health' in that code language ?

- (A) +
- (B) #
- (C) £
- (D) ?

Sol. (C) : go for morning walk → \$ * ? #

good for health → £ ? @

good to walk fast → + @ ↑ #

Thus the code of health is £.

Important Questions

1. In a certain code, TWINKLE is written as SVHMJKD, then how would FILTERS be written in the same code ?
(A) EHKSDQR
(B) EHKUDQR
(C) EGKUDQR
(D) GJMSFST
2. In a certain code language, OPERATION is written as NODQZSHNM. How is INVISIBLE written in that code ?
(A) JOWJTJCMF
(B) JOWJTHAKD
(C) HMUHTJCMF
(D) HMUHRHAKD
3. In a certain code, FAVOUR is written as EBUPTS. How is DANGER written in that code ?
(A) CBFDFS (B) CBMHDS
(C) EBFHDS (D) EBHHFS
4. If in a certain language, MIRACLE is coded as NKUEHRL, then how is GAMBLE coded in that language ?
(A) JDOCMF (B) CLEMNK
(C) HCPFQK (D) AELGMN
5. In a certain code language 'BEAUTIFUL' is coded as '573041208', 'BUTTER' as '504479'. How is 'FUTURE' coded in that code language ?
(A) 201497 (B) 204097
(C) 704092 (D) 204079
6. In a certain code language 'BASKET' is written as '5\$3%#1' and 'TRIED' is written as '14*#2'. How is 'SKIRT' written in that code language ?
(A) 3%*41 (B) 3*%41
(C) 3%#41 (D) 3#4%1
7. If 'rain' is 'water', 'water' is 'road', 'road' is 'cloud', 'cloud' is 'sky', 'sky' is 'sea' 'sea' is 'path', where do aeroplanes fly ?
(A) road (B) sea
(C) cloud (D) water
8. If 'blue' means 'green', 'green' means 'white', 'white' means 'yellow', 'yellow' means 'black', 'black' means 'red' and 'red' means 'brown', then what is the colour of milk ?
(A) black (B) brown
(C) blue (D) green
9. If WORK is coded as 4 - 12 - 9 - 16, then how will you code WOMAN ?
(A) 4 - 12 - 14 - 26 - 13
(B) 4 - 26 - 14 - 13 - 12
(C) 23 - 12 - 26 - 14 - 13
(D) 23 - 15 - 13 - 1 - 14
10. If DEER = 12215 and HIGH = 5645, how will you code HEEL ?
(A) 2328 (B) 3449
(C) 4337 (D) 5229
11. If E = 5 and HOTEL = 12, how will you code LAMB ?
(A) 7 (B) 10
(C) 26 (D) 28
12. If in a certain code, CERTAIN is coded as XVIGZRM, SEQUENCE is coded as HVJFVMXV then how would MUNDANE be coded ?
(A) NFMWZMX (B) NFMWZMV
(C) NFMXZMV (D) None of these
13. If the code word of 'STRIKE' is 'YYVLMF' then what would be the code of 'GARDEN' ?
(A) MFWHO (B) MEVGGO
(C) MFVGGO (D) MFVGHO
14. If the code word of 'CLAIM' is 'EPGQW' then what would be the code of 'FIGHT' ?
(A) HMNPD (B) HMMPD
(C) MHMPD (D) HMMPE
15. If the word LEADER is coded as 20-13-9-12-13-26, how would you write LIGHT ?
(A) 20-16-17-15-27
(B) 20-15-16-18-23
(C) 20-17-15-16-28
(D) 20-16-15-17-22

Solutions

1. (A) As,

| | | | | | | |
|----|----|----|----|----|----|----|
| T | W | I | N | K | L | E |
| -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| S | V | H | M | J | K | D |

Similarly,

| | | | | | | |
|----|----|----|----|----|----|----|
| F | I | L | T | E | R | S |
| -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| E | H | K | S | D | Q | R |

2. (D) As,

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| O | P | E | R | A | T | I | O | N |
| -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| N | O | D | Q | Z | S | H | N | M |

Similarly,

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| I | N | V | I | S | I | B | L | E |
| -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| H | M | U | H | R | H | A | K | D |

3. (B) As,

| | | | | | |
|----|----|----|----|----|----|
| F | A | V | O | U | R |
| -1 | +1 | -1 | +1 | -1 | +1 |
| E | B | U | P | T | S |

Similarly,

| | | | | | |
|----|----|----|----|----|----|
| D | A | N | G | E | R |
| -1 | +1 | -1 | +1 | -1 | +1 |
| C | B | M | H | D | S |

4. (C) As,

| | | | | | | |
|----|----|----|----|----|----|----|
| M | I | R | A | C | L | E |
| +1 | +2 | +3 | +4 | +5 | +6 | +7 |
| N | K | U | E | H | R | L |

Similarly,

| | | | | | |
|----|----|----|----|----|----|
| G | A | M | B | L | E |
| +1 | +2 | +3 | +4 | +5 | +6 |
| H | C | P | F | Q | K |

5. (B) As,

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| B | E | A | U | T | I | F | U | L |
| ↓ | 7 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 5 | 7 | 3 | 0 | 4 | 1 | 2 | 0 | 8 |

and

| | | | | | |
|---|---|---|---|---|---|
| B | U | T | T | E | R |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 5 | 0 | 4 | 4 | 7 | 9 |

Similarly,

| | | | | | |
|---|---|---|---|---|---|
| F | U | T | U | R | E |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 2 | 0 | 4 | 0 | 9 | 7 |

∴ FUTURE ⇒ 204097

6. (A) As,

| | | | | | | | | | | | |
|---|----|---|---|---|---|-----|---|---|---|---|---|
| B | A | S | K | E | T | and | T | R | I | E | D |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | | ↓ | ↓ | ↓ | ↓ | ↓ |
| 5 | \$ | 3 | % | # | 1 | | 1 | 4 | * | # | 2 |

Similarly,

| | | | | |
|---|---|---|---|---|
| S | K | I | R | T |
| ↓ | ↓ | ↓ | ↓ | ↓ |
| 3 | % | * | 4 | 1 |

∴ SKIRT ⇒ 3% * 41

7. (B) Aeroplanes fly in the 'sky'. But, as given, 'sky' is called 'sea'. Hence, aeroplanes fly in the sea.

8. (D) The colour of milk is 'white'. But, as given, 'green' means 'white'. So, the colour of milk is 'green'.

9. (A) The opposite of W is D, D's position in English alphabet is 4.

The opposite of O is L, L's position is 12.

The opposite of R is I, I's position is 9.

The opposite K is P, P's position is 16.

The same way,

$$\begin{aligned} W - D &= 4 \\ O - L &= 12 \\ M - N &= 14 \\ A - Z &= 26 \\ N - M &= 13 \end{aligned}$$

10. (D) As,

| | | | |
|---|---|---|----|
| D | E | E | R |
| ↓ | ↓ | ↓ | ↓ |
| 1 | 2 | 2 | 15 |

And

| | | | |
|---|---|---|---|
| H | I | G | H |
| ↓ | ↓ | ↓ | ↓ |
| 5 | 6 | 4 | 5 |

Similarly,

| | | | |
|---|---|---|---|
| H | E | E | L |
| ↓ | ↓ | ↓ | ↓ |
| 5 | 2 | 2 | 9 |

Here, the code of L is not given. So, we will find the code of L with the help of the options. Hence, option (D) is the correct answer.

11. (A) As,

$$E = \frac{E}{1} = \frac{5}{1} \Rightarrow 5$$

$$\begin{aligned} \text{HOTEL} &= \frac{H + O + T + E + L}{5} \\ &= \frac{8 + 15 + 20 + 5 + 12}{5} \\ &= \frac{60}{5} = 12 \end{aligned}$$

Similarly,

$$\begin{aligned} \text{LAMB} &= \frac{L + A + M + B}{4} \\ &= \frac{12 + 1 + 13 + 2}{4} \\ &= \frac{28}{4} = 7 \end{aligned}$$

12. (B) The pattern of coding is as follows :

| | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|
| Letters in original series (→) | C | E | R | T | A | I | N |
| Letters in Reverse series (←) | X | V | I | G | Z | R | M |

Similarly,

SEQUENCE ⇒ HVJFV MXV

Similarly,

| | | | | | | | |
|--------------------------------------|---|---|---|---|---|---|---|
| Letters in original series (→) | M | U | N | D | A | N | E |
| Letters in Reverse series (←) [code] | N | F | M | W | Z | M | V |

13. (C) As,

| | | | | | | | | | | | | |
|----|----|----|---|----|---|---|----|----|----|----|----|---|
| S | T | R | I | K | E | → | Y | Y | V | L | M | F |
| 19 | 20 | 18 | 9 | 11 | 5 | | 25 | 25 | 22 | 12 | 13 | 6 |
| | | | | | | | +6 | | | | | |
| | | | | | | | +5 | | | | | |
| | | | | | | | +4 | | | | | |
| | | | | | | | +3 | | | | | |
| | | | | | | | +2 | | | | | |
| | | | | | | | +1 | | | | | |

Therefore,

| | | | | | | | | | | | | |
|---|---|----|---|---|----|---|----|---|----|---|---|----|
| G | A | R | D | E | N | → | M | F | V | G | G | O |
| 7 | 1 | 18 | 4 | 5 | 14 | | 13 | 6 | 22 | 7 | 7 | 15 |
| | | | | | | | +6 | | | | | |
| | | | | | | | +5 | | | | | |
| | | | | | | | +4 | | | | | |
| | | | | | | | +3 | | | | | |
| | | | | | | | +2 | | | | | |
| | | | | | | | +1 | | | | | |

14. (B) As,

| | | | | | | | | | | |
|---|----|---|---|----|---|-----|----|---|----|----|
| C | L | A | I | M | → | E | P | G | Q | W |
| 3 | 12 | 1 | 9 | 13 | | 5 | 16 | 7 | 17 | 23 |
| | | | | | | +2 | | | | |
| | | | | | | +4 | | | | |
| | | | | | | +6 | | | | |
| | | | | | | +8 | | | | |
| | | | | | | +10 | | | | |

Therefore,

| | | | | | | | | | | |
|---|---|---|---|----|---|-----|----|----|----|---|
| F | I | G | H | T | → | H | M | M | P | D |
| 6 | 9 | 7 | 8 | 20 | | 8 | 13 | 13 | 16 | 4 |
| | | | | | | +2 | | | | |
| | | | | | | +4 | | | | |
| | | | | | | +6 | | | | |
| | | | | | | +8 | | | | |
| | | | | | | +10 | | | | |

15. (C) As,

| | | | | | |
|----|----|----|----|----|----|
| 12 | 5 | 1 | 4 | 5 | 18 |
| L | E | A | D | E | R |
| +8 | +8 | +8 | +8 | +8 | +8 |
| 20 | 13 | 9 | 12 | 13 | 26 |

Similarly,

| | | | | |
|----|----|----|----|----|
| 12 | 9 | 7 | 8 | 20 |
| L | I | G | H | T |
| +8 | +8 | +8 | +8 | +8 |
| 20 | 17 | 15 | 16 | 28 |



Chapter 1

English Language

Reading Comprehension

A comprehension exercise is mainly consisted of a passage, upon which questions are set. The main purpose of this exercise is to test ability of a student.

Therefore, candidate is need to read the passage carefully and choose the correct answer out of the given alternatives.

To Important Points to be noted in this field are given as under

- The reader should develop a habit of reading different types of articles which will help them to understand the tone, attitude, and style of writing of several writers.
- Use of “bottom-up” approach which means, read the questions first, so that the reader has an idea of what to look for, in the passage. It will save the reader’s time.
- While reading the long passage make sure not to read the complete passage, try reading only the part that is related to the questions that are asked
- While reading the passage don’t try to memorize every part of the passage instead understanding the essence of the point being conveyed by the author.
- Increase the reading speed by solving different exam papers or online mock tests.
- Try to engage with the passage from the starting, do not read the passage similar to reading an article in the newspaper because, by the time the reader reaches the end of the passage, she/he has forgotten what was at the beginning of the passage. Therefore, try and actively engage with the contents of the passage.

Important Questions

Direction (Q. No. 1 to 5)

Read the following information carefully and answer the given questions.

Big dams received a big push from politicians and bureaucracy pouring enormous amounts of borrowed money in the early years of independence. There has however been hardly any attempt at questioning the extent of damage caused or in evaluating whether the promises of food, water and prosperity for all have actually been realised. The diversion of rivers and construction of a long system of canals in a densely populated country like India will involve displacement of people on a colossal scale and the people affected are never likely to agree with such measures. All over the world, community reaction is to prevent construction of large dams. Preserving rivers in free-flow condition is considered ecologically necessary and the construction of large dams is now legally prohibited in Sweden and also in parts of USA. The technical challenges to be faced in redrawing the geography of the country are many and full of dangerous consequences and the mad rush in pursuit of such a chimera will prove disastrous. The cost of the project is so stupendous that any water made available will cost so much that governments will have to be forever subsidizing farmers. What long-term impact this massive borrowing will have on the economy is difficult to foresee.

1. Which of the following is not true about the water made available through dams ?
(A) The water so generated is mainly used in washing.
(B) The government gives subsidy to the farmers due to high costs of the water from the dams.
(C) The water so generated is mainly used in agriculture.

- (D) The water made available through dams has high costs associated with it.
2. Which of the following have been mentioned as disadvantages of dams ?
(A) Ecological imbalance due to restrictions on the flow of rivers.
(B) Displacement of people on a large scale.
(C) Construction of dams is prohibited in Sweden.
(D) Displacement of people on a large scale and ecological imbalance due to restrictions on the natural flow of rivers.
3. Which of the following statement is true ?
(A) The water made available through dams is better suited for industries than agricultural because of high costs and most of the countries have banned the construction of big dams.
(B) Most of the countries have banned the construction of big dams.
(C) The water made available through dams is better suited for industries than agricultural because of high costs.
(D) The diversion of rivers will involve displacement of people on a colossal scale.
4. Which word is similar in meaning to displacement ?
(A) Inactivity (B) Dislocation
(C) Stagnation (D) Inaction

5. What is the thematic centre of the passage ?

- (A) The social impact of dams over rivers their economic impact.
- (B) Dams have proven to be bane rather than boon in the long run and the social impact of dams over rivers their economic impact.
- (C) Following the footsteps of Sweden and USA in banning the construction of dams.
- (D) Dams have proven to be bane rather than boon in the long run.

Direction (Q. No. 6 to 10)

Read the following information carefully and answer the given questions :

Climate change and its imperatives across the globe have moved beyond the immediate compulsions of rising mercury levels on planet Earth. It is today a debate among nations on geo-politics and the shift in economic balance from the developed countries to the emerging economies. The rhetoric by global leaders thus needs to be taken with a pinch of salt for it is not all about climate change concerns. The changing axis of economic power of the East and emerging countries of Asia will perhaps take a while to sink in. Developing economies like India and just beginning to take baby steps on the global stage and industry entrepreneurship will have to go a long way. Millions of house-holds in India still have to depend on

6. Why does the author want the talks about climate change by the global leaders “to be taken with a pinch of salt” ?
(A) The talks are sometimes directed towards political and economic gains rather than climate change

within four hours — the earlier the better, to improve the chances of success.

“It takes six-seven minutes to harvest a heart. Another two-three minutes are lost in placing the organ in a bag and rushing it to the ambulance. Transplanting the heart into the receiver’s body takes 40-60 minutes. We have three hours for transporting the heart from one hospital to another, so we focus on saving time there,” says Dr. Kewal Krishan, Director of Heart Transplants at Max Super Speciality Hospital.

16. What is the main theme of the passage?
- (A) The importance of time in transplant of organs.
(B) Transplanting heart and other organs.
(C) Transporting organs at a fast pace by creating a green corridor.
(D) Efficiency of Delhi police in transporting organs.
17. What is the Delhi Police’s role in the whole process?
- (A) Creating and managing the green corridor for the ambulance.
(B) Blaring their sirens to cause inconvenience to motorists.
(C) Escorting the ambulance carrying the organ.
(D) Driving the ambulance carrying the organ.
18. Put these steps of heart transplant in sequence.
- a. Transporting the heart from one hospital to another.
b. Harvesting the heart from a brain dead person.
c. Transplanting the heart in the patient’s body.
d. Securing the heart in a safe box and rushing it to the ambulance.
- (A) c a b d (B) b d a c
(C) d b c a (D) a b c d
19. What does Jai Kumar, the driver of the ambulance carrying a heart, fear the most?
- (A) The ambulance may develop a snag and not start.
(B) The condition of the heart may deteriorate.
(C) He may get stuck in a traffic jam on the way.
(D) The police may erect barricades.
20. How much maximum time do the doctors get to transport a heart from one hospital to the other?
- (A) Four hours (B) Three hours
(C) One hour (D) half an hour

Direction (Q. No. 21 to 25)

Read the following passage and answer the questions below.

The pandemic's second wave may have subsided but hopes of a smooth rebound in the economy in tandem with easing restrictions remain muddled, with the inflation numbers for May compounding the problem. The soaring pace of rising prices, both retail and wholesale, in the month that saw widespread lockdown-like restrictions, has come as a negative surprise. Inflation based on the Wholesale Price Index is reckoned to have hit a 25-year record of nearly 13 percent, while retail inflation touched a six-month high of 6.3 percent. While runaway fuel prices, that include high excise duties and taxes, were a key factor in driving up both the inflation indices, they were not the only ones at work. Retail inflation in food hit a six-month high of 5 percent, from barely 2 percent in April, with pulses and eggs as well as edible oils leading the surge. 'Fuel and light' inflation hit 11.6 percent, the highest in over nine years, and no respite is in sight on this front as pump prices for petrol raced past ₹ 100 a litre in even more parts of the country this month. Diesel has also crossed the century mark in Rajasthan's Sri Ganganagar, where freight costs add up on top of State and central taxes. Even if one were to discount food and fuel prices, core inflation has crossed the 6 percent mark for the first time in 31 months and is estimated at 6.6 percent. Reacting to the April retail inflation print of 4.3 percent, after averaging a steep 6.2 percent through 2020-21, the RBI Governor had remarked earlier this month that it brought some relief and 'elbow room' for sticking with growth-supportive policy. If anything, May's inflation prints leave no such room for manoeuvre. Though the bank's Monetary Policy Committee may not switch away from its dovish Policy, no further easing of interest rate can be expected at these price levels. Most economists expect inflation to remain higher than the average 5.1 percent estimated by the central bank for this year.

21. Even if one were to discount food and fuel prices, then still, the core inflation has crossed the mark.....
- (A) 6 percent
(B) 11.6 percent
(C) 5.1 percent
(D) 6.2 percent
22. According to the given passage, most economists expect inflation to remain
- (A) higher than the average 6.3 percent
(B) lower than the average 4.9 percent
(C) higher than the average 5.1 percent
(D) lower than the average 5.1 percent

23. What does the word 'Manoeuvre' mean in the given passage?

- (A) the denial and rejection of a doctrine or belief
(B) an increase by natural growth or addition
(C) a movement or set of movements needing skill and care
(D) a state or condition markedly different from the norm
24. According to the given passage, which of the following statements is incorrect?
- (A) Inflation based on the Wholesale Price Index is reckoned to have taken a hit
(B) Diesel has also crossed the century mark
(C) Runaway fuel prices don't include high excise duties and taxes
(D) Most economists expect inflation to remain higher than the average 5.1 percent
25. According to the given passage, retail inflation in food has hit.....
- (A) A six-month high
(B) A three-month low
(C) A six-month low
(D) A three-month high

Direction (Q. No. 26 to 30)

Read the following information carefully and answer the given questions.

Water is scarce for many creatures in the Sonoran Desert in Arizona, so when it does rain (or snow or sleet), some resident rattle snakes seize the moment. They slither out of their dens, flatten themselves in a coil shape, and suck the water that collects on their backs into their mouths.

Now a team of engineers and biologists has discovered special properties of the reptiles' scales that help the snakes become living rain buckets. They found that a water droplet hitting the back of a western diamondback rattlesnake breaks into smaller droplets that often stay pinned to the snake's skin. In contrast, most water hitting the scales of two desert-dwelling snakes that haven't been observed harvesting rainwater—the desert king snake and the Sonoran gopher snake—simply slides off.

When the researchers looked at the snakes' skin with a powerful microscope, they saw that the rattlers' scales sported a network of tiny channels, each about one-tenth the width of a red blood cell across. Additional tests showed how the intricate texture helps the scales capture water.

Scientists suspect the rattlesnakes evolved to harvest precipitation with their bodies because the snakes are relatively slow-moving and rely

on ambush to catch their meals. Having to travel far to get water might reveal the snakes to their prey (or to predators such as hawks). Instead, the snakes simply gather a drink directly from the sky.

26. Which of the following words is synonym of 'slither' ?
 (A) Grovel (B) Recede
 (C) Ascend (D) Retrograde
27. What style of writing is used in the following passage ?
 (A) Persuasive (B) Descriptive
 (C) Argumentative (D) Narrative
28. What is the primary purpose of the following passage ?
 (A) To understand the importance of rain water harvesting
 (B) To understand the dermatology of desert-dwelling rattlesnakes
 (C) To explain how desert rattlesnakes harvest rainwater
 (D) To explain the struggle of desert rattlesnakes in the winter season
29. Why author has compared the desert-dwelling snakes to 'rain buckets' ?
 (A) The desert-dwelling snakes are commonly called rain buckets.
 (B) Because they can store a good amount of water under their.
 (C) Because they harvest rainwater with the help of their skin
 (D) Because the rattlesnakes move slowly while drinking water.
30. According to the given passage, what helps a rattlesnake to store rain water ?
 (A) Rattlesnakes skin having idenfinite scales.
 (B) Their urge to drink more water.
 (C) Their slow movement in the desert.
 (D) Coil shape during precipitation.

Direction (Q. No. 31 to 33)

A passage is given with 2 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

Most people use social media in one form or another. While there is nothing inherently wrong with that, and while social media can sometimes be beneficial, it's important to be aware that social media is associated with a number of issues and potential dangers, including stress, anxiety, loneliness, and depression. Understanding the dangers of social media is important, both so you can deal with them yourself, and so you can help others deal with them. As such, in the following article you will learn about the issues that are associated with social media, see who is most vulnerable to them, and find out what you can do to deal with them effectively. There are many reasons why people keep using social media even when it's bad for them, and these reasons vary across individuals and across circumstances. One notable reason why people continue to use social media even though it affects them negatively is that they're simply unaware of its harmful influence. Furthermore, in some cases, people are aware of the harmful influence that social media has on them, but they don't care enough about these dangers to want to change their behaviour. However, many people continue to use social media even though they know it's bad for them and even though they want to stop, because they're psychologically predisposed to keep using it. For example, one study found that people keep using Facebook despite the fact that it makes

them feel bad, because they keep expecting it to make them feel better.

31. Three assertions are given below (A, B & C) on the basis of your understanding of the passage, which one of the options is correct?
 A. There are a number of potential dangers and issues associated with social media.
 B. People continue using social media despite knowing its ill effects.
 C. People use Facebook with the expectation that it will make them feel better.
 (A) All are correct.
 (B) B & C are correct.
 (C) Only B is correct.
 (D) A & B are correct
32. On the basis of your reading of the above passage, select the most appropriate heading for the same.
 (A) Dangers of Social Media and How to Avoid Them
 (B) Subconscious Mind
 (C) Ban Facebook
 (D) Life threatening effects of social media

Answer Key

1. (A) 2. (D) 3. (D) 4. (B) 5. (D)
 6. (A) 7. (C) 8. (D) 9. (C) 10. (D)
 11. (C) 12. (D) 13. (A) 14. (A) 15. (D)
 16. (C) 17. (A) 18. (C) 19. (C) 20. (B)
 21. (A) 22. (C) 23. (C) 24. (C) 25. (A)
 26. (A) 27. (B) 28. (C) 29. (C) 30. (A)
 31. (A) 32. (A)

